#11028496
ID: 88001148
WO Info 82-265
Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225
H
61
.G84
1982



THE BUREAU OF LAND MANAGEMENT
SOCIAL EFFECTS PROJECT

Guide To Social Assessment

By:
Kristi Branch, James Thompson, James Creighton,
and Douglas A. Hooper

Prepared by:
Mountain West Research • North, Inc.
Billings, Montana

In association with
Western Research Corporation
Laramie, Wyoming

JULY 1982

CONTRACT NO. AA851-CTO-46

BLM-YA-PT-82-007-1606

BUREAU OF LAND MANAGEMENT LIBRARY
Denver, Colorado
88001148

BLM Social Effects Project

BLM Project Coordinators

Paul Myers
Tony Guida
Julia Jordan
Frances Sullivan

Project Director

James R. Moore, Mountain West Research - North, Inc.

Project Co-managers

Kristi Branch, Mountain West Research - North, Inc.
James G. Thompson, Western Research Corporation

Project Team

Stan Albrecht, Brigham Young University
Pamela Bergmann, Mountain West Research - North, Inc.
James Creighton, Creighton and Creighton
Douglas Hooper, Mountain West Research - North, Inc.
Pat Jobes, Montana State University
Bob Kimble, Western Research Corporation
Errol Meidinger, Lewis & Clark Law School
Steve Murdock, Texas A & M University
David Pijawka, Arizona State University
Allan Schnaiberg, Northwestern University
Matt Snipp, Summers Associates
Gene Summers, Summers Associates
Ken Wilkinson, Penn State University
Gary Williams, Western Research Corporation

Technical Editing

Janice Von Vogt

Graphics

Ken Kunz

GUIDE TO SOCIAL ASSESSMENT

Technical Briefing Report

United States Department of the Interior
BUREAU OF LAND MANAGEMENT

JULY 1982

GUIDE TO SOCIAL ASSESSMENT

TECHNICAL BRIEFING REPORT

This report is intended to provide an accessible and straightforward discussion of the Guide to Social Assessment. It also explains several of the essential ideas upon which the design of the Guide is based. The Guide is the major product of a two-year Social Effects Project sponsored by the Bureau of Land Management (BLM) in order to enhance comparability of such assessments, to insure more even quality levels, and to distribute resources (time, personnel, and funding) more efficiently.

While BLM sponsored the Social Effects Project and is responsible for the Guide, it is clear that the guidance can be used by other Federal agencies and by state/local authorities in considering changes in land use, modifications of economic bases, and in permitting processes. Furthermore, the contents of the Guide can be used to assist in the preparation of contracts (Statements of Work) for social assessments.

Thus, the intent of the Guide is to move such assessments toward a more common approach, across the public administration, business, and academic/research communities.

Generation of Information Needed by Decision Makers

An early component of the overall Social Effects Project was a Denver, Colorado conference attended by both executives (local, state, and federal) and social scientists (federal agency and academic). The purposes of the working conference were to document the social effects information needs of executives and to portray the information delivery capabilities of social scientists.

In general terms, it was agreed that several priority information needs exist. The major questions that emerged through conference discussion included the following:

1. What is the capacity of communities to absorb change and deliver services?

2. What would be the distribution of effects within communities?

3. What are the residents' attitudes toward change?

Most participants at the conference represented areas with potential energy development-induced growth. However, these questions are judged to apply toward a wide range of assessments on many types of resource management proposals other than energy development issues.

Through use of the Guide, information addressing these questions is available in a concise and timely fashion.

Application in a Variety of Resource Management Situations

Initially, the focus of the Guide was to assist persons in completing the social components of environmental and planning assessments of major energy proposals in the western United States. As the project evolved, however, it became clear that the principles being employed could also be used to examine natural resource management proposals of a more routine nature. Often the implementation of these proposals has very limited or subtle local social effects. Examples are range, forestry, wilderness, wildlife, and recreation proposals.

The Guide provides guidance for assessments appropriate for large-scale energy or similar construction projects as well as renewable resource situations. Only minor modifications to the suggested process are required to alter its use from the most elaborate assessment circumstances to less intense situations.

Determination of Appropriate Assessment Levels

Social scientists have, on occasion, given only limited attention to resource proposals with major local consequences. However, there have also been other, probably more numerous, situations in which agency resources (personnel, funding, and time) have been misapplied toward proposals that do not merit detailed assessments. Chapter 7 of the Guide presents a mechanism--a series of judgment steps--for completing a preliminary assessment which should reduce these errors.

Managers should find this process useful in preparing work plans for their staff. Specialists will have a process available as a focus for discussion with managers. The goals to be realized through these collaborative judgments are to insure the placement of adequate BLM and other federal agency resources where justified and to document lack of need for detailed analyses elsewhere.

Thus, the idea is one of alignment between assessments and local social implications. Chapter 7 of the Guide will be useful within the social science community and between social scientists and managers.

While the judgment factors will be different in the natural and physical sciences, the judgment process should be similar. The logic of the rationale for determining what level of assessment is justified should be the same for all disciplines. The logic outlined in Chapter 7 should be appropriate for both social and natural scientific disciplines.

Application in Different Types of Assessments and Accompanying Skill Levels

Some assessments are interdisciplinary. Others are multidisciplinary. In some cases, information on the proposed action is very detailed. Only very sketchy information on alternatives is on hand in other circumstances. Generally, administrative and scholarly guidance has not distinguished between fundamentally different types of assessments.

Figure 6-1 in the Guide displays variable assessment contexts. Awareness of these differences allows the user of the Guide to make his/her work consistent with the decision process being undertaken.

Associated with these matters are the issues of academic training and experience. The Guide is designed and written for users with different backgrounds. At one extreme, a user with extensive training and experience facing a well-defined proposal should be able to apply the guidance toward preparing a relatively elaborate or sophisticated analysis. At the other extreme, trained personel may not be available to address proposals that are at an early stage of evolution. In a situation such as the latter, the Guide provides sufficient guidance—without being narrowly mechanical--for non-social science specialists to make systematic, well-considered judgments on the local social implications of alternatives under consideration.

Association with Economic-Demographic Projections

Much of the conceptual guidance designed to aid people in doing social assessments does not relate local social change to the dominant sources of that change. These sources are production, employment, income, and population. The process outlined in the Guide ties the economic-demographic analysis to the social. Failure by persons assigned to work on the economic and social components of environmental assessments to share issues, data, methods, analyses, and projections with their counterparts results in lower efficiency and less effectiveness.

Figure 3-2 in the Guide (attached to this report) clearly displays the relationships between changes in local economic activity and changes in local social conditions. Technically, this is one of the strongest and most basic features of the Guide.

Use of the Guide within BLM and other agencies responsible for assessments should enhance the working relationship between economists, planners, and sociologists and provide for more accurate and credible projections.

Determination of the Appropriate Unit of Analysis

One important decision that is necessary in doing social effects assessments is choosing the unit of analysis. In the recent past, effects on individuals have received the bulk of social scientific attention. Day-to-day experiences in living, perceptions of change, exposure to altered social environments, and similar individually-based analyses have been completed.

However, the Guide suggests that the community should also be examined in order to prepare more effective assessments. There are two reasons for the addition of the community as a unit of analysis. These are:

1. Executive information needs center on (among other factors) the community's ability to absorb change. This issue emerged at the Social Effects conference. (Community ability to absorb change is the social and economic equivalent of the carrying capacity concept that is widely applied in the physical and biological disciplines.)

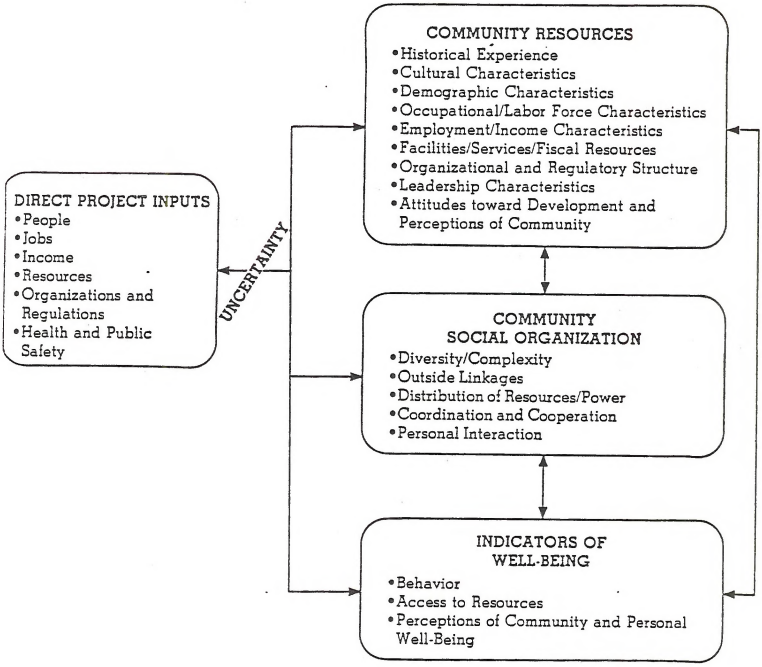
2. Research clearly demonstrates that, given certain local economic changes, effects on individuals are not consistent from community to community. In fact, the mobilization of community resources, quality and posture of local leadership, the state-local regulatory environment, and other factors exert a very strong influence on the nature and intensity of local changes, including those on individuals.

The use of community as a unit of anlaysis does not mean that it excludes using the individual as a unit of analysis. Several resource programs in BLM and other agencies affect individuals but not communities. An example is the range program, where analysis would move from economic changes (employment and income) directly to individual social well-being. The process model (Fig. 3-1) discussed in the Guide would still apply, but attention to the community would not be necessary or useful.

Relationship to Public Involvement

The Guide clearly presents (Chapter 4) the potential ties between social effects assessment and public involvement efforts. Such efforts can and should compliment one another. At the same time, there are inherent differences between social effects assessment and public involvment. The former is analytical and projective. The latter focuses on the documentation of public preferences. Ideally, persons responsible for these activities should keep one another aware of their respective tasks and the information gathered should be shared.

Social Organization Model



Guide to Social Assessment

Briefing Report for Managers

1. What is THE GUIDE?

The Guide is designed to assist in the planning and performance of assessments of the local social effects of natural resource management proposals. While the bulk of the document (Section 2) was prepared for technical users, the introductory section (Section 1) is useful to both managers and specialists.

2. Toward which resource programs will THE GUIDE apply?

The suggested process fits the assessment needs of persons working on both renewable (forestry, range, wildlife, and recreation) and nonrenewable (energy minerals, hardrock minerals, and wilderness) resource proposals.

3. How will the use of this guidance benefit managers?

Applying the guidance will result in delivery of information on the following managerial questions:

- Would implementing the proposal(s) have significant local social effects?
- If so, what is the nature of these changes?
- Where would these effects take place?
- How long would they last?
- Who would be most affected?
- Is there a difference between what people think the effects will be and the actual likely outcomes?
- Can the community successfully absorb these changes?
- How can the effects be mitigated?

4. What skills are needed to use the guidance?

The design of The Guide is based on the assumed availability of persons with some social science (sociology, economics, planning) background to complete the analysis. Data collection can be accomplished by persons with training or experience in other fields.

5. Which chapters in THE GUIDE are appropriate reading for managers?

Section 1 (Chapters 1-5) have been written for both managers and specialists. However, managers who reviewed the draft version of The Guide have commented that Chapters 6 and 7 in Section 2 are helpful because they focus on decision-making and on tailoring the assessment to the issues confronting management. In particular, Chapter 7 presents a judgment process for scoping a social assessment but the logic applies equally well to assessments in the biological and social sciences.

Table of Contents

Page

Section I: General Principles

1. Introduction to the Guide
 - 1.1 Introduction 1- 1
 - 1.2 Purpose of the Guide 1- 2
 - 1.3 Organization of the Guide 1- 3
 - 1.4 The Decision-maker Orientation 1- 3

2. The Purposes of Social Assessment
 - 2.1 Introduction 2- 1
 - 2.2 Why Consider Social Information 2- 2
 - 2.3 The Role of Social Information in Resource Management Decision-making 2- 6
 - 2.4 Appropriate Levels of Social Information 2- 9

3. The Role of the Community in Social Change
 - 3.1 Introduction 3- 1
 - 3.2 Direct Project Inputs 3- 4
 - 3.3 Community Resources 3- 5
 - 3.4 Community Social Organization 3- 6
 - 3.5 Social Well-being 3-12
 - 3.6 The Social Organization Model 3-13

4. The Relationship of Social Assessment to Other Parts of the Decision-making Process
 - 4.1 Overview of the Assessment Process 4- 1
 - 4.2 Social Assessment and Economic/Demographic Analysis 4- 1
 - 4.3 Social Assessment and Facilities/Services/ Fiscal Analysis 4- 5
 - 4.4 Social Assessment and Public Involvement 4- 6
 - 4.5 Social Assessment and the Assessment of the Physical Environment 4- 7

5. Overview of the Decision-making and Social Assessment Processes
 - 5.1 Introduction 5- 1
 - 5.2 General Principles 5- 1
 - 5.3 Integrating Social Assessment with the Decision-making Process 5- 2
 - 5.4 The Social Assessment Process 5- 4

Table of Contents (CONTINUED)

Page

Section II: A Framework for Social Assessment

6. Defining the Context of the Assessment
 - 6.1 Introduction 6- 1
 - 6.2 Decision-making Context 6- 2
 - 6.3 The Procedural Context 6- 8

7. Scoping the Assessment Effort
 - 7.1 Introduction 7- 1
 - 7.2 Determine Potential Inputs 7- 2
 - 7.3 Determine What Aspects of the Existing Social Environment Need to be Described to Complete the Scoping Process 7- 7
 - 7.4 Obtain Preliminary Information about the Potentially Affected Communities 7- 9
 - 7.5 Work through the Screening Process 7-10
 - 7.6 Plan and Conduct a Field Trip 7-19
 - 7.7 Determine Expected Changes in the Input Categories for Baseline Conditions 7-19
 - 7.8 Reevaluate Screening Results 7-20
 - 7.9 Develop a Work Plan 7-20
 - 7.10 Conclusion 7-21

8. Formulating Alternatives
 - 8.1 Introduction 8- 1
 - 8.2 The Social Assessor's Role in Formulating Alternatives 8- 1

9. Description of the Existing Environment
 - 9.1 Introduction 9- 1
 - 9.2 How to Determine the Important Characteristics of the Existing Environment: Use of the Social Organization Model 9- 2
 - 9.3 Gathering the Information 9-78
 - 9.4 Documenting Your Work and Preparing the Description of the Existing Environment 9-88

10. Forecasting Baseline, Direct Project, and Total Impacts
 - 10.1 Introduction 10- 1
 - 10.2 Purpose and Role in the Assessment Process 10- 1
 - 10.3 Forecasting Baseline, Direct Project, and Total Inputs 10- 4
 - 10.4 Documenting the Results 10-19

11. Forecasting and Evaluating the Social Effects
 - 11.1 Introduction 11- 1
 - 11.2 How to Forecast and Evaluate Social Impacts 11- 2
 - 11.3 Documenting and Presenting the Results 11-15

Table of Contents (CONTINUED)

Page

12. Mitigation, Monitoring, and Plan Selection
 - 12.1 Introduction 12- 1
 - 12.2 Development and Evaluation of Mitigation/Enhancement Measures 12- 1
 - 12.3 Design of Monitoring Programs 12-10
 - 12.4 Participation in Plan Selection 12-14

Section III: Methods and Techniques

13. Organizing and Conducting a Field Trip
 - 13.1 Introduction 13- 1
 - 13.2 Define the Purpose of the Field Work 13- 1
 - 13.3 Review Available Materials 13- 2
 - 13.4 Plan the Field Trip 13- 4
 - 13.5 Notify Local Officials 13- 6
 - 13.6 Prepare Interview Guides and Field Instruments 13- 7
 - 13.7 Conduct the Field Work 13- 7
 - 13.8 Document the Field Work 13-10

14. Sampling, Surveying, Interviewing and Data Analysis
 - 14.1 Introduction 14- 1
 - 14.2 Define the Objectives of the Primary Data Collection Effort 14- 1
 - 14.3 Sampling 14- 4
 - 14.4 Survey Methods 14-13
 - 14.5 Development of Topical Guides 14-22
 - 14.6 Interviewing Techniques 14-22
 - 14.7 Data Analysis 14-28
 - 14.8 Recommended Reading 14-33
 - 14.9 Interview Guides 14-37

15. Use of Secondary Data and Sources
 - 15.1 Introduction 15- 1
 - 15.2 How Secondary Data and Sources Can be Used 15- 1
 - 15.3 Useful Sources of Secondary Data 15- 2

Appendixes

A. Demographic Projections

B. Guide to Facilities/Services and Fiscal Assessment

List of Figures

		Page
3-1	The Social Organization Model	3- 2
4-1	Steps in the Impact Assessment Process	4- 2
5-1	The Social Assessment Process	5- 5
6-1	Characteristics of Social Assessments	6- 4
6-2	Possible Baseline and With-action Conditions	6-11
7-1	People	7-11
7-2	Jobs	7-12
7-3	Income	7-13
7-4	Resource Availability or Cost	7-14
7-5	Organizations and Regulations	7-15
7-6	Health and Public Safety	7-16
7-7	Summary	7-17
7-8	Estimated Range of Inputs Across all Alternatives by Community	7-18
9-1	The Social Organization Model	9- 4
9-2	Summary of Information Requirements	9-80
10-1	The Social Assessment Process	10- 2
10-2	Inventory of Inputs	10-20
10-3	Summary of Population Change	10-21
11-1	Graphs Representing Population and Employment Change	11- 6
11-2	Matrix to Identify Major Relationships	11- 8
11-3	Comparision of Alternatives	11-14
14-1	Glossary	14- 2
14-2	Sample Letter Requesting a Face-to-face Interview	14-17
14-3	Sample Letter Requesting a Telephone Interview	14-20

List of Figures (CONTINUED)

		Page
A-1	Economic/Demographic Assessment Model - Overview	A-15
A-2	Economic/Demographic Assessment Model - Demographic Submodel	A-16
A-3	Economic/Demographic Assessment Model - Economic Submodel	A-18
A-4	Economic/Demographic Assessment Model - Labor Market Submodel	A-21
B-1	Capital Requirements and Capital Costs	B-11
B-2	Summary of Population Change	B-13
B-3	Staffing Requirements	B-15
B-4	Minor Capital Outlays	B-15

SECTION I:
GENERAL PRINCIPLES

1. Introduction to the Guide

1. Introduction to the Guide

1.1 Introduction

The development of our nation's resources in the sparsely populated areas of the western states can produce considerable change in how people in these areas live. The development of energy resources is not the only source of social impact. Decisions regarding the proper levels of coal development, grazing, and the use of wilderness or forest lands, as well as the methods to manage and regulate these resources, all produce some amount of social change.

As the manager of much of the federal land in the West, the U.S. Bureau of Land Management (BLM) is the federal agency responsible for assessing the impacts of many of these proposed projects. Under the National Environmental Policy Act (NEPA) and the subsequent guidance issued by the Council on Environmental Quality (CEQ), the Bureau of Land Management is required to assess the environmental, economic, and social impact of all significant actions taken either by the agency or under permits granted by the agency.

Analyzing and evaluating the cost/benefit ratios of projects has been a part of federal decision-making for some time, although in recent years there have continued to be significant improvements in the methods used for economic assessment. The formalized assessment of environmental impacts is somewhat more recent; yet over the past decade, methods have been developed which are increasingly more appropriate and effective. The large-scale development of energy resources in this region over the last decade has increased the need to consider more carefully the social impacts of management decisions.

As with these other areas, the characteristics and methodology of social assessment[1] have evolved through its application to the problems for forecasting and mitigating the social effects of a variety of resource decisions. To develop a social assessment methodology that provides the decision-maker with the kind of information about social effects he or she needs to make good decisions and that is solidly based on accepted standards of social research, the Bureau of Land Management sponsored the Social Effects Project, a two-year effort to review existing literature, to examine the social effects of large-scale resource development projects, and to develop a guide to social assessment. This guide represents a major product of that effort.

1.2 Purpose of the Guide

The purpose of the guide is to assist field staff in scoping and conducting social assessments in such a way that they are defensible and useful decision-making tools, so that they can deliver useful information to managers. This means integrating the assessment smoothly and effectively into the planning and policy-setting procedures of federal natural resources agencies and complying with relevant federal legislation and policy (for example, the NEPA and CEQ rules and guidelines, as well as particular agency requirements).

This guide was written for the BLM staff member conducting social assessment and assumes some background in social science. To the extent possible, a minimum of special social science terminology has been used and the use of applied skills has been emphasized. This is not to suggest that the methodology in this guide is somehow less "scientific," only that considerable effort has gone into developing a sound analytic framework which is stated as simply as possible and which emphasizes practical application.

[1]We recognize that CEQ has defined the term "environmental assessment" (which implicitly includes "social assessment") as referring to the document rather than the process. Because the term "social assessment" is widely accepted in the social science community as referring to the process, for purposes of this guide, the term will be used in this way.

1.3 Organization of the Guide

The guide is divided into three major sections: Section I, General Principles; Section II, A Framework For Social Assessment; and Section III, Research Methods and Techniques.

The first section provides an overview of the purposes of social assessment, how it relates to other assessment processes, and what the decision-maker can expect to learn from the social assessment. This section is recommended reading both for people in decision-making positions and for those responsible for conducting social assessments.

Sections II and III are more technical and are intended primarily for those who are actually conducting social assessments. Section II is a "how-to" guide explaining how to design and conduct a social assessment that is an integral part of the planning or decision-making process. Section III provides guidance on the use of social assessment research methods such as field trips, interviews, and surveys.

The reason for separating the basic framework from the methods is to ensure that the overall structure of the social assessment process is not obscured by too much detail and to allow people with different levels of experience in social assessment to pick and choose what they need. This guide will be used by people with different backgrounds. Some will have graduate degrees in social research and should be familiar with research methods. Others will be new to the social assessment field and, for them, an introduction to basic methods may be important. Within sections II and III, each person should be able to find the information he or she needs at an appropriate level.

1.4 The Decision-maker Orientation

This guide is based on the premise that the purpose of social assessment is to help the decision-maker by providing the social information that he or she needs to make a more informed decision. If the

information is not presented in a way that can be used, if its significance is not apparent, or if its validity is in question, then the potential value of the social assessment is lost.

The procedures described in this guide are designed to produce usable information. The assessment should produce documents that effectively identify the issues, analyze the information, and present the conclusions in a manner that enables the decision-maker to understand the significance of the effects and to have confidence in the validity of the forecasts.

One of the basic findings of organizational research is that people within an organization will value you and your skills to the extent that you are able to help them solve problems that are real to them. All members of an assessment team need to be constantly aware of this axiom. For social assessment to be valued, it must be rigorous and valid, it must help people solve problems, it must be presented in terms that have meaning to people, and it must exhibit sensitivity to agency realities. This guide has been written with this orientation and should help social assessment play an important role in making more informed decisions.

2. The Purposes of Social Assessment

2. The Purposes of Social Assessment

2.1 Introduction

The West is sprinkled with ghost towns -- mining towns that closed when the ore ran out, booming frontier towns that slowly died when the railroad located along another route, or ranching towns that died when cattle could be shipped by railroad or truck. These ghost towns are monuments to the social change resulting from decisions made by previous generations. Undoubtedly, people living in these towns faced many of the ailments with which modern sociological literature is concerned: the boom/bust phenomenon; increased alcoholism, crime, and rowdiness when large groups of men without family ties congregate together; separation of husbands from families for economic reasons; and alienation and loneliness. The interesting point about ghost towns is that while they often make people sad, they are usually accepted as "just the way things were." It is assumed that if there was an economic justification for either the boom or the bust, all questions are answered.

A quiet revolution has taken place in what we believe we must pay attention to when making decisions. We no longer assume that economic justification is the only criterion for making decisions. We now believe we must also take into account health and safety, environmental enhancement, mitigation of social impacts, and equitable distribution of benefits and costs.

There is no common agreement on just how much responsibility belongs to companies, which problems are the responsibility of government instead of the private sector, and how much regulation is appropriate. However, there is common agreement that these impacts should at least be visible, that people should understand what the impacts will be before they make a decision. Over the past decade, this consensus has been incorporated into numerous laws and regulations that require governmental agencies to clearly identify the economic, environmental, and

social impacts of a project before making a decision or taking action. Responsibility to weigh the relative importance of economic, environmental, and social consequences of each project or proposed action remains with the decision-maker, and the weights and values used by the decision-maker must receive full public exposure.

2.2 Why Consider Social Information

There are a number of reasons to consider social information. They include the following:

1) Assessing impacts on the quality of life
2) Predicting a community's ability to adapt
3) Defining the problem
4) Understanding the meaning of action-related changes
5) Mitigating the impacts

2.2.1 Assessing Impacts on the Quality of Life

It is abundantly clear that there are many qualities of life which are not captured in reports on the Gross National Product or distribution of personal income. Often we refer to these qualities as "intangibles" because they are difficult to quantify. But at an emotional level, they are a tangible part of what makes life pleasurable and worth living. Among other things, these factors can include feeling a part of the community where you live; knowing where you stand in relationship to other people; having a sense that you and people in your community have control over the decisions that affect your future; knowing that your government strives to act in ways that benefit everyone equitably, rather than benefiting just a privileged few; living without undue fear of crime or personal attack; and feeling confident that your children will get a fair start in life.

All of these concerns are social, and while they may be hard to quantify, their absence can contribute to behaviors that are indeed

quantifiable, such as suicide, divorce, health problems, delinquency, crime, mental illness, alcoholism, and other socially and personally destructive actions. Of course, many times the absence of these factors doesn't result in anything this dramatic. It simply results in people not feeling good about themselves, their community, and their lives.

Behaviors for which there are clear consequences, such as suicide or alcoholism, for example, can be translated at least partially into economic terms by considering the economic costs of dealing with these problems. Of course, a lot of questionable assumptions about "cause and effect" must be made to know how to distribute these costs. More often it is only possible to describe, not to quantify, the probable impacts of a proposed action upon those factors which we lump together and call "the quality of life." How important this impact is in comparison to economic values or environmental values remains a matter of judgment.

2.2.2 Predicting a Community's Ability to Adapt

One of the problems in trying to research the possible social consequences of an action is that there are no simple cause-effect relationships. Unlike laboratory animals, people talk back. They act purposively. Different people and different communities react differently to similar events. When you provide people with information about possible impacts, they are likely to act differently because of this information and thus alter the impacts. The social researcher doesn't just examine a community, he interacts with it.

During the research leading to the preparation of this guide, it became clear that it was never possible to say that a particular feature of a project -- such as introduction of a large number of construction workers into a community -- would always produce a particular impact. Instead it was very clear that how the community was organized and how it reacted was of at least equal importance in determining what the impact

would be. This means that in order to predict a social impact, it isn't enough to know only what the project introduces into a community, it is equally important to know something about the community's ability and willingness to adapt to or modify these changes. This means that the social assessor must obtain not only concrete information about the characteristics of the affected communities, but also information about residents' attitudes toward change and the proposed action, and the communities' intentions and ability to respond. No assessment of social information is complete without a look at these aspects of the community itself.

2.2.3 Defining the Problem

Social information can often be important in understanding what the major problems are in a community. In some cases, a proposed action can worsen conflicts which already exist. In the West, for example, many small communities are already in the transition from having agriculture- or ranching-based economies to having energy-oriented economies. With this transition have come social changes including changes in values, changes in the power structure, and the introduction of external decision-makers (federal and government and energy company management) into decisions about community growth. If there already is tension in a community about these changes, a proposed action may simply activate an ongoing controversy. In this instance, people's perception of and response to the problem may be substantially different than if the community was unified or if the transition to an energy-based economy had already occurred.

In other cases, proposing an action can make visible problems that existed but were unrecognized before the proposal. An important factor in a community's ability to adapt to growth is whether the institutions or mechanisms to regulate growth, such as land use plans and zoning permits, have already been established. In many communities, there is no

agreement within the community about what kind of future is wanted. In some communities there is little or no leadership or the leadership does not appear able or willing to deal with important issues. Obviously a problem like this, which existed before a proposed action, is very different from a problem caused by the proposed action, but it is important to understand this in order to assess the community's response to change and to forecast and evaluate the likely social consequences of the proposed action. An understanding of the community and how it is likely to interact with a proposed action is essential to understanding the true nature of "the problem."

2.2.4 Understanding the Meaning of the Action-related Changes

It is not enough to know what changes an action will cause, it is also necessary to know what those changes will mean to the people who will be affected by them. If you know, for example, that an increase in population will result in people losing the feeling of knowing and being known by everybody in town, you must also ask whether this matters. Is it significant? Is it important enough that it could cause a decline in people's social well-being or the ability of willingness of the community to respond? The obvious answer is that such a change would be very important to some people and relatively unimportant to others. In other words, the meaning of a change is determined substantially by people's reaction to it.

One important objective of social research is to determine what meaning a probable impact would have for a community. Would this impact be seen as very significant or unimportant? Positive or negative? Could the project materially affect something that people consider an important aspect of their way of life? This kind of information is extremely important when weighing the importance of social impacts in relation to the other types of impacts that might occur.

2.2.5 Mitigating the Impacts

The three previous purposes for considering social information all have to do with deciding whether or not to proceed with an action. Another important use of social information is to determine how an action can be modified to result in the least adverse and most beneficial impacts.

With the advent of the Environmental Impact Statement, the word "mitigation" has become a regular part of assessment terminology. The term simply means actions taken to alter the impacts of a project by minimizing or removing negative impacts or maximizing positive impacts. Social assessment can be crucial in determining what mitigation is necessary, what mitigation alternatives exist, and which mitigation strategies are most likely to work. As stated before, different communities will react differently, and understanding the social organization of a particular community is very important in determining which strategies will work in that community.

2.3 The Role of Social Information in Resource Management Decision-making

There are numerous points in the resource management decision-making process where social information can play an important role. As the following discussion illustrates, social information can be useful at every stage of the decision-making process.

2.3.1 Problem Identification and Scoping

Social assessment can help identify how different segments of the community define the problem and clarify who the "stakeholders" -- those people who see themselves as impacted by a proposed action -- are and what their perspective on the problem is. Typically there are many different perceptions of the potential impacts, and social assessment can determine which perceptions are held by which groups and how those groups interact. Social assessment is also useful in determining

whether the proposed action will create or restimulate existing divisions within the community or whether the community is cohesive and is likely to respond in a unified manner. Based on this type of information, social assessment is useful in scoping the entire assessment effort.

2.3.2 Development of Alternatives

Social assessment, in conjunction with public involvement, can identify the attitudes in the study area communities toward the type of actions being considered. This can help identify the range of alternatives that need to be developed and evaluated and can provide information about which alternatives are likely to be more acceptable to the major stakeholder groups.

2.3.3 Forecast of Impacts and Evaluation of Alternatives

Social assessment will provide descriptions of the kind and amount of the major social impacts that will result from each alternative. As will be discussed in later chapters, the forecasting of social impacts is difficult precisely because different people and different communities react differently to what appear to be very similar events. Nevertheless, social assessment should be able to describe the impacts that are likely to occur with each alternative, to provide a discussion of the major factors affecting these impacts, to evaluate these impacts' meaning to the residents of the affected communities, and to compare the different alternatives in terms of social effects.

2.3.4 Development and Evaluation of Mitigated Alternatives

In addition to identifying possible social change, social assessment should also be able to suggest actions to reduce negative impacts (for those social impacts that can be mitigated) and to enhance positive change. In addition to describing mitigation alternatives, social assessment should also provide estimates of the impacts that would occur

under various mitigation alternatives and evaluate which alternatives are most likely to be implementable, given the attitudes of people in the community and the nature of the community's ability to respond. The ability to mitigate adverse effects may prove to be a crucial factor in selecting an alternative.

By describing the kind and amount of social change that will be created by each alternative after mitigation, social assessment allows the decision-maker to make a decision with knowledge of the probable social consequences and with sufficient information to be able to judge the importance of this social change relative to other environmental and economic values. Social assessment can also provide considerable information about implementation of the alternatives. The ability to implement depends in part on the existence of institutions that can effectively raise taxes, accept monies, coordinate different parties, and regulate growth in desired directions. Project implementation often requires formalizing arrangements between different organizations, changing organizational mandates or regulatory authorities, or revising local laws. Part of social assessment is an analysis of organizational and regulatory arrangements that will have to be created or changed if the proposed action is implemented and an analysis of the problems associated with making those changes.

2.3.5 Monitoring and Evaluating Mitigation Measures

It often isn't enough to just develop mitigation plans; there is also a need to establish monitoring and evaluation processes to determine how well the mitigation program is working and whether or not changes need to be made. Despite the general absence of BLM or other federal agency authority in this area, social assessment can provide suggestions for ways in which impacts can be monitored and what types of action would be appropriate if problems appear.

2.4 Appropriate Levels of Social Information

2.4.1 Pertinence to the Decision

The guide assumes the need to provide the decision-maker with useful social information at every stage of the decision-making process. It recognizes, however, that the decision-maker needs to receive that information in a form suitable to the problem at hand. During problem identification and scoping, the most appropriate format might be a short (two-page) issue paper, while at the end of a decision-making process involving a permit application, the information needs to be prepared for inclusion in the EIS. The challenge is to target the assessment and present the information in such a way that it is appropriate to the problem being addressed and is genuinely useful to the decision-maker.

A good test of the appropriateness of the research and the information is to ask whether and how the information will eventually help in making a decision. The purposes of social assessment in a government agency are utilitarian, not academic. If the information from an analysis doesn't have a bearing on the decision as it is originally formulated, the presentation of the information or the focus of the analysis should either be changed so that it does, or, if additional information or analysis would add nothing pertinent to the decision, the conclusions should be documented and further effort discontinued.

For example, it is entirely possible that when a social assessor is asked to analyze the social impacts of leasing each of twenty coal tracts, he or she may be unable to discern any differences between leasing one tract or leasing another in terms of social consequences. If that is the case, the social assessor should prepare an assessment of the social change associated with leasing any (and therefore all) of the tracts and clearly state that the social analysis does not discriminate between tracts. If it is clear that the social information doesn't discriminate, then the decision-maker can focus on other environmental and

economic effects when comparing and selecting the individual tracts and utilize the social information when making a decision about the acceptability of leasing those that have been selected.

The guide also emphasizes the need to develop information appropriate to different levels of decision-making. In the coal program, for example, a different level of information is appropriate for use in the development of land use plans than in the generic appraisal of tracts, the site-by-site appraisal of tracts, or the assessment of the cumulative impacts of leasing a specific combination of tracts. Similarly, different levels of analysis are appropriate for the assessment of alternative grazing reduction programs, wilderness alternatives, and transmission line sitings. The question in each case is, What information is needed to correctly evaluate the magnitude of impacts and to discriminate among alternatives? The assessment should key itself to the kind of information the decision-maker needs to make the particular decision being addressed. Anything more specific and elaborate is usually a waste of effort and resources and may well detract from the effectiveness of the assessment.

2.4.2 Regulations and Policies

The value of social assessment to the decision-maker has been formally recognized in legislation, and a number of legal and policy requirements for social assessment have been established. Principal among these are (1) the National Environmental Policy Act of 1969 (NEPA), which established a national policy requiring comprehensive, systematic evaluation of the effects on the natural and human environment of major federal actions, and (2) the rules and regulations established by the Council on Environmental Quality (CEQ) to implement this policy. Section 102 of the NEPA states:

> The Congress authorizes and directs that, to the fullest extent possible...agencies of the federal government shall...utilize a systematic interdisciplinary approach which

> will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment....

In addition, the activities of individual federal agencies are governed by legislation. The Federal Coal Management Program, established in 1976, for example, created a management and regulatory framework for determining where and under what circumstances federal coal may be leased. This requires consideration of the "interests of institutions and people who use the resources or are affected by resource use decisions" (U.S. Dept. of the Interior 1979). These and other regulations and policies governing social assessment made clear that the social effects of major federal actions or actions utilizing federal resources must be identified and considered in the decision-making process.

3. The Role of the Community in Social Change

3. The Role of the Community in Social Change

3.1 Introduction

Ultimately, the goal of social assessment is to estimate the effects of a proposed action on the well-being of people over both the short and long term. In some situations -- the assessment of grazing decisions or transmission line sitings, for example -- the principal social consequences result directly from the effect of the proposed action on the well-being of individuals; the proposed action has little potential to affect the resources or social organization of communities. In other situations -- the assessment of large-scale resource development activities or the cumulative effects of multiple land management decisions -- the most significant social consequences may result from the effects of the proposed action on the resources and social organization of the community. This is because the resources and social organization of the community constitute an important aspect of individual well-being and because these factors act in an important way to mediate the effects of a proposed action on individuals and families.

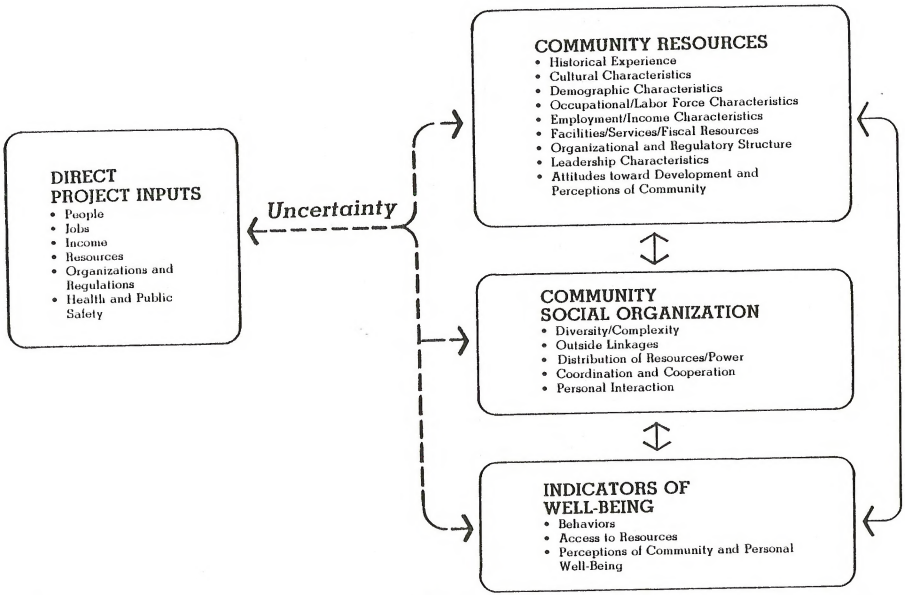
In designing a guide for use in multiple assessment situations, it was therefore important to develop an assessment framework that effectively focused attention on the appropriate issues while providing guidance for the most comprehensive problems likely to be encountered.

Based on extensive analysis of resource-based actions and the social effects they have caused in communities, a model (shown in Figure 3-1) was developed to illustrate the analytic framework recommended by the guide. It should be noted here that the approach presented in the guide is one of many that could be used, but it has been found effective and applicable to the variety of assessment problems likely to be addressed by its users.

This framework identifies four major topics to consider in assessing the social effects of a proposed action. These are represented by the

FIGURE 3-1

The Social Organization Model



four components of the model and the analytic framework that are used throughout the guide:

1) Direct project inputs. These are the changes in people, jobs, income, resources, organizations and regulations, and health and public safety that occur as a result of the proposed action. For the social assessor, a critical feature of this component is that it does not address the characteristics of the entire project or proposed action per se. Rather it utilizes information obtained from an analysis of the changes in these elements (people, jobs, etc.) that would result from the proposed action. To illustrate how this would apply at the community level, an action which would directly employ 600 people might result in the influx of 1,000 new persons to the study area, 800 of whom would reside in community A and 200 of whom would reside in community B; the direct project inputs of people to community A would be 800 people. In addition, the changes in these elements that would occur in the absence of the proposed action also needs to be estimated to construct the baseline or "no-action" alternative.

2) Community resources. This component is part of the description of community characteristics and the resources available to the community. A number of resource characteristics have been identified as particularly important in determining the community's ability to respond and to the access its residents will have to resources. These are shown in Figure 3-1. The resources available in the community will change as the community is affected by the proposed action and other factors.

3) Community social organization. This component addresses social organization, another aspect of community characteristics. Five major processes that organize and give structure to life in a community have been found particularly important in analyzing how communities will respond to an action and how residents will evaluate the changes that will occur. These five processes are diversity/complexity, outside linkages, distribution of resources and power, coordination and collaboration, and personal interaction.

4) Indicators of well-being. In many ways this component incorporates much of the information contained in the preceding two components, but presents it in different terms. The purpose of this component is to organize and present information that summarizes or indicates the well-being of community residents. Three major topics are included among the indicators: behaviors, access to resources, and perceptions of community and personal well-being.

Each of these components is discussed further in the next section of this chapter.

3.2 Direct Project Inputs

In the most direct sense, what a proposed action brings into a community (or to an individual) that can result in social effects is people, jobs and technology, income, resources, new organizations and regulations, and sometimes, changes in health and safety. Each of these produces changes in the existing situation and therefore has the potential for causing social change. Research on past social change has shown that it is not only what is introduced that is important, but also when and how it is introduced and the degree of uncertainty that is created. For example, whether a company or agency follows a policy of providing accurate, up-to-date information or remains secretive about its plans, or whether the company or agency is perceived as being in control of the factors influencing the schedule and magnitude of the inputs to the community can make a major difference in the amount and kind of social change that results.

What needs to be known about a proposed action in order to assess its social effects includes the following:[1]

1) The number and demographic characteristics of the people who would enter or leave the community as a result of the proposed action, with particular attention to schedules and temporary residence

2) The number and type of jobs created or eliminated by the proposed action and their general distribution among longtime residents and newcomers

3) The amount and general distribution of income brought to or removed from the community or affected individuals as a result of the proposed action

4) The magnitude and type of resources brought to or removed from a community or affected individuals by the proposed action (including tax revenues)

5) The number and type of organizations and regulations created or eliminated as a result of the proposed action

[1]To assess the no-action alternative or to establish baseline conditions, the same model and process can be employed, with the changes that would occur in people, jobs, income, resources, organizations and regulations, and public health and safety under baseline conditions substituted for the direct project inputs.

6) Changes in health and public safety caused by the proposed action

For large projects, substantial analysis is required to determine the magnitude, schedule, and certainty of the direct project inputs to each study area community. Most of this analysis is done in the course of the economic/demographic assessment of the project, so generally the social assessor can get this information without much additional effort.

One of the unique characteristics of social assessment is that the things being assessed -- the project inputs into the community and their effects -- may be altered just by informing the community about them. People may start moving into the area in anticipation of jobs. People who are barely getting by economically may remain in the community in anticipation of jobs. Store owners may decide to expand their operations. School boards may consider what to do about future increases in the number of students. Other people may move out of the area in order to avoid anticipated impacts. Real estate prices may go up or down in anticipation. Because we are dealing with people, making social assessment information available is itself a source of social change.

3.3 Community Resources

The resources available to the community are an important determinant of how the community and its residents will be affected by the project inputs. The importance of some of these resources is relatively obvious, such as the availability of facilities and services (e.g., enough schools, hospitals, homes, etc.). However, a part of a community's resources is what it knows and how it feels about dealing with major projects. As a result, the community's experience with development or other major community changes as well as residents' attitudes towards development need to be understood.

The community resources most influential in determining how the community will react to and be impacted by a project are the following:

1) The community's previous experience with development

2) The cultural characteristics of the community, particularly the presence of unique populations such as American Indians

3) The demographic characteristics of the community

4) The occupational (livelihood) and labor force characteristics of the community

5) The employment and income characteristics of the community

6) The existing or planned facilities, services, and fiscal resources in the community

7) The organizational and regulatory structure of the community

8) The leadership characteristics of the community

9) The community residents' attitudes toward development and their perceptions of the community

Some of the information about both existing resources and expected changes will be prepared by the economic/demographic or the facilities/services analyst. Coordination among team members is essential to ensure that effort is not duplicated and that the necessary information is available when it is needed.

3.4 Community Social Organization

Community social organization is the structure and processes which organize how people in a community relate to each other. Culture, the shared ideas and expectations which regulate behavior, is the organizing principle underlying social organization. In an earlier age, different communities had very distinct cultures. Now, in a country where almost everyone is linked by newspaper, radio, or television coverage of events both in the United States and around the world, much of this distinctiveness has been lost. The proliferation of national associations and interest groups, as well as the expanded role of federal and state government, have also played a role in reducing cultural differences. However, the presence of a sizable number of people from a unique cultural group, such as American Indians, or a religious group, such as Mormons, may cause a particular community to be culturally distinct.

But social organization is not based solely on ethnic and religious ties or distinctions. There are a number of other patterns or forms of

interaction that are highly significant. There are five characteristics of how people organize themselves in communities which show up in social research as particularly significant in determining what social change occurs in a community. These five characteristics are the following:

1) Diversity/complexity
2) Outside ties
3) Distribution of resources/power
4) Coordination among people in the community
5) Patterns of personal interaction

3.4.1 Diversity/Complexity

Diversity/complexity refers to the range of values and interests within a community. Research indicates that as a community grows, if everything else is equal, the diversity of values and groups will increase, and the ways people have to interact to get things done will become more complex and formalized. Economic growth, particularly if associated with new kinds of economic development such as the energy industry, will result in increased diversity in technology and in the kinds of occupations and sources of income within the community. Not only will there be an increase in economic diversity, but the accompanying increase in population will usually also increase ethnic and cultural diversity as well as the diversity of personal experience and background. This can be both a source of stimulation and conflict for a community. Different groups may have different needs, place different demands for services on the community, and because of differences in cultural norms, exhibit differences in social behavior.

Social science research indicates that increased diversity/complexity may be an inevitable consequence of population growth. One consequence of this increased diversity/complexity is increased interdependence. This has advantages, but it can also increase the effort required to keep the diverse elements operating together effectively and increase the need for more formal procedures.

One important reason for assessing a community's complexity/diversity before the project begins is that the amount of social change which will occur depends on whether or not the community is already relatively specialized and diverse. If a community is relatively homogenous, then the changes required to adapt to growth will be greater and may seem more significant to the residents.

3.4.2 Outside Linkages

Outside linkages refers to the extent to which local residents, institutions, economic resources, and decision-makers are influenced by people outside the community and the extent to which the community has the ability to call upon outside resources for support and aid. In some towns, usually the smaller ones, people may relate to each other primarily in providing services, selling goods, forming judgments, and making decisions. In others, there may be a greater orientation and attention to outside markets, activities, and trends. Some communities have established comparatively few ties with outsiders who control resources or information that could be used to provide assistance, while others have a well-established and effective network of such ties.

As projects are introduced from the outside, particularly those which result in a large in-migration of new residents, these characteristics can change dramatically. The community may become large and wealthy enough to attract a national supermarket chain. Sources of loans and credit other than the local bank may become available. Local decision-makers may have to work with numerous state and federal agencies. Major decisions concerning employment may be made by the management of a company with headquarters hundreds of miles away. Newcomers bring with them new ideas, practices, and commitments from the larger society. The products produced by community labor are often shipped out of the community, and the markets for these products have little to do with local conditions. Such changes may substantially increase the opportunities for some people in the community. They may also lead to the community feeling it has less control over its future. The ability of

the community to handle or control its future may depend upon its ability to draw on resources outside the community, such as political power, money, or knowledge, through the establishment or utilization of outside ties.

3.4.3 Distribution of Resources and Power

In every community, there are some differences in access to community resources and services. These are linked to people's education, occupation, financial position, family ties, land ownership, political power, and so forth. The particular patterns of differential access and factors influencing the distribution of resources and power can vary substantially from one community to another.

The issue of how resources are distributed in a community becomes important in assessing social impacts because it is not enough to know that a project will introduce a certain number of dollars into a community. It also is necessary to know how those dollars will be distributed. Will the funds be distributed in a way that increases equity, or will only the rich get richer? Will the position of powerful groups be threatened? If only some people will benefit, this may help explain attitudes towards the project and may also explain the willingness (or unwillingness) of the community to provide services for the project.

Generally speaking, the increased flow of resources into a community results in increased opportunities for accumulation of resources. In the short term, economic development often creates problems for some people in the community. People on fixed incomes or people who are chronically unemployed may be worse off because economic development may inflate housing prices and prices for other goods and services. While most people may be more than compensated for this increase with increased earnings, people who are not in a position to benefit from economic development may suffer.

If there is an economic or political elite in a community, this elite may find itself in competition for new resources and may be faced

with a new elite created by a major project. When development is slow, membership can be extended gradually to members of the new elite. But a major energy project, for example, may introduce into the community a significant number of well-paid and well-educated people who expect to have access to resources and services that is commensurate with their income and education. This may pose a challenge to the old elite and generate conflict.

With rapid economic growth, basic economic power may be shifted from one sector of the economy to another. This means also that relative status is decreasing for some groups at the same time that it is increasing for others. In particular, economic power is increased for those who are able to organize and control resources in the community and for those who have the best links to the outside world.

3.4.4 Coordination and Cooperation

Coordination is a term used for the process of organizing and focusing the activities of the various elements of the community. Cooperation is the process by which different people work together to get something done. As mentioned earlier, increased diversity/complexity may require an increased effort to keep things coordinated and to promote cooperative effort. Decision-making that involves outside agencies or company management can also create demands that previous community decision-making processes did not have to accommodate. Generally speaking, the more equity there is in the distribution of resources, the more likely it is that interconnections have been formed with all parts of the community and that mechanisms for cooperation have been established.

The crucial question is whether the coordination and cooperation processes needed to take action and manage change exist before a new project is introduced into the community. Research shows that this is very crucial in determining the extent to which the impact of change is negative. In smaller communities, the resources may simply not be

available to support the formal processes for managing change, such as in a town that can't afford a paid planner. On the other hand, in smaller communities there may be informal control processes which are effective (for example, the town banker doesn't issue a loan for development that the city fathers don't think is in the community interest). The problem is that these informal processes tend to break down when resources come in from the outside and therefore may become ineffective or counterproductive at the point where control is most needed. The banker's willingness to loan money would have little meaning to a major energy company. To maintain control, these informal processes tend to be supplemented or replaced by more formal procedures. This change can affect the complexity of the community as well as the established patterns of personal interaction.

3.4.5 Personal Interaction

In every community, there are patterns of how people relate to each other. In small communities, people usually share a common background and relate to each other on the basis of knowing and being known by virtually everybody. People know each other's family background, approximate financial condition, and personal characteristics. There is little need for formal procedure because everybody knows each other so well. The patterns of stratification tend to be well-established and personalized through the patterns of interaction. People know who is on their social level and who is not. The political and social elite, if there is one, know how to get things done. As a community gets larger and there is an influx of people into the community, there is a tendency for patterns of interaction to become more complex and far more formal procedural norms to be established. People have to deal with a higher proportion of complete or relative strangers. The local businessman who never had to show identification to cash a check in town must now show two forms of identification to cash a check at the new chain supermarket. The local developer who used to handle permit problems with the county commissioner now must submit formal plans, deal with a planning staff, and appear at public hearings. As sectors of the community

become specialized, people may lose contact with others in the community with whom they have had regular contact in the past.

In some ways, "personal interaction" is a summing up of many of the impacts of the other four processes above. Changes in any of the other four will usually result in changes in patterns of personal interaction.

3.5 Social Well-being

The final major topic which the social assessor must address is social well-being. This begins to deal directly with impacts upon the individual, although most of the available indicators of well-being still use community figures (for example, the crime rate in the community) as the basis for assessing well-being.

One of the problems with social well-being is that it is an inherently subjective concept. Well-being is as much a feeling one has about one's life as an objective state. Among other things, well-being is defined in relationship to expectations of the conditions that should prevail in one's life. Somehow the assessor must make an effort to objectively assess the extent to which the social well-being of various groups in the community will be affected by the project. This guide recommends an approach that combines both objective and subjective measures. The three basic measures which the social science research indicates are most important are the following:

1) Rates of behaviors
2) Access to resources
3) Perceptions of community and individual well-being

3.5.1 Rates of Behaviors

There are a number of behaviors that have been used as objective aggregate indications of social well-being and have a basis both in theory and research. The most useful of those for which data are generally available appear to be patterns or rates of behavior within the community that indicate social, family, or personal problems such as crime, family violence, delinquency, divorce, and so on.

3.5.2 Access to Resources

Here the social assessor will consider the aggregate and per capita measures of resources and will concentrate on the changes in the pattern of resource availability in the community. Particular attention will be given to those groups whose access is likely to be changed as a result of a proposed project. Because this analysis will rely heavily on the economic and demographic and facilities and services analyses, there needs to be close coordination between the social assessor and those conducting these other components of the socioeconomic analysis.

3.5.3 Perceptions of Community and Individual Social Well-being

Information concerning perceptions is essential to the forecasting and interpretation of community response to a proposed project. As indicated earlier, residents' perceptions often do not correspond exactly with objective changes, but perceptions can have a powerful influence on individual and social action. If people perceive that they do not have access to resources, they are as closed off from resources as if a formal system blocked their availability. If newcomers believe that they will not be accepted, they may never extend themselves to the old-time residents and may never ask to join existing organizations. The behaviors and attitudes resulting from these perceptions can thus produce very real social impacts. In addition, given the inherently individualized nature of perceptions, measurement of residents' perceptions of well-being prior to the proposed action is an essential element in determining and evaluating changes in social well-being that might be caused if the action is taken.

3.6 The Social Organization Model

As guidance to the social assessor, this guide organizes the four basic elements described above into the social organization model shown in Figure 3-1. The arrows between components indicate that elements in these components interact with each other. The people introduced by

the proposed action (one element of the direct project inputs) place demands on community resources, while the resources introduced by the proposed action can act to mitigate these impacts. Consequently, modification of project inputs can alter the effects on resources. For example, the work hours for construction workers can be designed to avoid traffic peaks. The hiring of workers can be managed so that there is a steady increase of construction workers, not a sudden rush. Taxes can be prepaid. Assistance can be provided to the community to take care of increased demand for emergency services.

When the project inputs interact with the community social organization, there are also interactive changes. The community may develop new processes for dealing with the project inputs, thus changing both the social organization and the impact of the project inputs. Of course, there is interaction between social well-being and community resources and community social organization. If social well-being is lowered by the changes caused by the proposed action, longtime residents may leave the area, or turnover among the newcomers may be high, which in turn affects resources and organization.

However, the model does show that the project inputs' direct effects on individuals may not be the only cause of project-related changes in social well-being. The inputs may be sufficient to cause change in community resources and social organization, which in turn will affect individual well-being. It is the job of the social assessor to examine the relationship indicated in the model, make judgments about probable impacts, and present them so that the basis for making these projections is clear to the decision-maker.

4. The Relationship of Social Assessment to Other Parts of the Decision-making Process

4. The Relationship of Social Assessment to Other Parts of the Decision-making Process

As described in earlier chapters, social assessment has a contribution to make at every stage of the planning or decision-making process, but it is just a part of the total decision-making process. This chapter first describes the overall assessment process and then explores how social assessment fits in relationship to the other components.

4.1 Overview of the Assessment Process

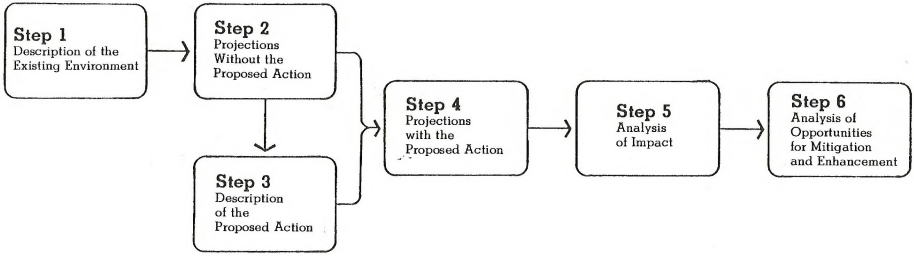
The fundamental purpose of an assessment effort is to determine what difference a particular action or decision will make. Inherent in the assessment process is a comparison between what will happen if a particular action is taken or a particular decision is made and what will happen if it is not. The alternatives likely to be addressed by users of the guide generally cause effects on the natural and human environment over a period of time ranging from months to years. Neither the natural nor the human environment is static. They are continually changing, even in the absence of the decision or action being proposed. Determining the difference a proposed action will make (its impacts) requires the comparison of two forecasts -- one describing conditions as they would be without the proposed action (the baseline), and one describing conditions as they would be with the proposed action. The assessment process is designed to develop these two forecasts, describe the impacts due to the proposed action, and evaluate their importance and meaning. A final step in the assessment process is to determine (1) whether modifications in the proposed action or in the response to it could lessen (or mitigate) adverse effects or enhance positive ones and (2) what the effects of the mitigated or enhanced action would be. (See Figure 4-1.)

4.2 Social Assessment and Economic/Demographic Analysis

Social assessment and economic/demographic analysis are closely linked because in the typical organizational arrangement, economic/

FIGURE 4-1

Steps in the Impact Assessment Process



demographic analysts prepare most of the forecasts of baseline and direct project inputs that are the starting point for the social analysis and are also responsible for preparing the description of the existing economic and demographic conditions in the study area communities.

This does not mean that the final figures used in the assessment come solely from the economic/demographic analyst. The best relationship is unquestionably one of close communication and collaboration among team members. But for many projects, particularly those involving large changes in people, jobs, or income, the economic/demographic analysis is complex, and the forecasts from it are critical to the social assessment. Because the economic/demographic analysis is so important to the social assessment effort, social assessors often find it to their advantage to understand the basic relationships involved in the analysis of economic and demographic change. In some cases, no separate economic/demographic assessment is done, and responsibility for developing the necessary information falls on the person doing the social assessment. (For those who find themselves in this position, a guide to developing demographic projections is provided in Appendix A.) Not only must economic/demographic projections be developed, they must be in a form that can be used in social assessment. This is why there must be close collaboration if different people are doing the economic/demographic analysis and the social assessment.

Although there is common interest in the figures, there are significant differences in how they are used by economic/demographic analysts and social assessors. The most important differences are:

1) Distributional effects. Economic/demographic assessment will usually provide information about the project's aggregate economic effects upon a community. Social assessment will explore how those economic effects are distributed within the community or among individuals. Social assessors will look at questions such as, Will everybody in the community share equally in the economic benefits, or will some groups clearly benefit more than others? Will all groups in the community share equally in the economic costs of the project, or will it impact some more than others? If benefits and costs are distributed

differently, are the people who gain the most benefits also the ones who receive the most costs?

2) Values context. All projections, including economic/demographic projections, rest on assumptions such as the rates of growth of population, etc. In many cases, these factors are influenced by the local community, either through intentional actions or policies or through the characteristics of community organization. The assumptions that are used in projections need to be reviewed in light of social values, often through the involvement of local officials or community leaders. Both social assessment and public involvement concern themselves with evaluating public values. An understanding of local community values can add considerably to the accuracy and appropriateness of the assumptions made about the community response and the "meaning" of the projections to the community. This is one area in which economic/demographic analysis may be dependent on social assessment and public involvement. Without understanding local values, the assumptions used in the economic/demographic analysis could be inappropriate.

 One problem which does occur from time to time is that the social assessor begins work using projections based upon inappropriate assumptions, but doesn't discover this until after working in the community for a while. If this occurs, it is useful (and may be necessary) to go back to the economic/demographic analyst and agree on a course of action for reviewing and revising the projections.

3) Interactional effects. Communities interact with the initial direct project inputs to produce a complex set of changes that can affect subsequent project inputs and the overall social effects. The project interacts with existing conditions in the study area to produce the actual project inputs to each community. The introduction of a certain number of construction workers into an area cannot by itself predict the demands on facilities and services in a particular community. Indeed, how the workers and community interact can produce very different usage patterns for community services. Controversy over a proposed project also has the potential to generate strong interactional effects that can influence both project characteristics and outcome. Social assessment looks at these interactions. Without understanding how the community interacts with the project inputs, with each being changed in the process, it is unlikely that projections about effects will be very accurate. Social assessment refines the economic/demographic forecasts of baseline and direct project inputs by examining the unique way in which a particular community may interact with changing economic conditions or with a particular project.

4.3 Social Assessment and Facilities/Services/Fiscal Analysis

Social assessment and facilities/services/fiscal analysis are also closely linked. In fact, the overlap in information requirements and analysis is often considered sufficient to have one person be responsible for both. For this reason, guidance on facilities/services/fiscal analysis is provided in Appendix B. As with the economic/demographic analysis, many of the aggregate figures used in the social analysis result from the facilities/services and fiscal component.

In particular, the facilities/services/fiscal component plays an important role in establishing the following. Often this analysis is done in conjunction with the social and economic/demographic analysis:

1) Direct project inputs. Workers cannot live in a community unless there is housing for them. The type of housing and the quality of community services (such as schools, recreational facilities, medical care) influence not only the number but the characteristics of the in-migrating population.

2) Existing facilities/services/fiscal conditions. Current service and cost levels and capacity, tax burden, and bonding capacity need to be established.

3) Future demand for facilities/services and the revenues available to finance them. It is important to forecast the future demand for facilities and services and to forecast change in their availability as well.

As is evident in the social organization model shown in Figure 3-1, both the economic/demographic and facilities/services/fiscal information are critical to the social assessment, although as in the economic/demographic analysis, there may be differences in the use of figures and in the particular data required by the facilities/services and social analysts. For this reason, it is particularly desirable to establish an assessment process that ensures clear definition of the responsibilities and requirements for each component and that encourages collaboration and good working relationships among the economic/demographic, facilities/services, and social assessment staff.

4.4 Social Assessment and Public Involvement

The relationship between social assessment and public involvement is also very close, since social assessment and public invovement are both concerned with:

1) The public's values,
2) The public's attitudes toward the proposed project,
3) The distribution of political power in the community, and
4) Issues of justice or equity.

While they both look at some of the same information, their interest in that information is somewhat different. Public involvement considers public attitudes, values, and political structure as they contribute to the decision of whether or not (and in what manner) to proceed with a proposed action. The focus of social assessment is on predicting what happens after the decision is made and providing that information for use in the decision of whether or not to proceed. Community opinions, values, and political structure all interact with the proposed action to produce social effects. It is these interactions and the effects that are produced that interest the social assessor. Social assessment and public involvement are intertwined because the information produced by the public involvement activities informs the social assessment, and the information provided by the social assessment can influence the decision.

As a result of the difference in emphasis, there are some additional differences as well:

1) Public involvement usually deals more with those people who are actively interested in an issue, while social assessment tries to assess impacts on the entire community.
2) Social assessment relies more on the analysis to synthesize and evaluate information about the community, while public involvement is a more political process.
3) Public involvement activities often have high visibility (public meetings, media coverage, etc.), while social assessment is often less visible, involving one-on-one interviews, reviews of newspapers and secondary sources, and small group meetings.

Actually, it is not clear to what extent these differences are inherent or simply reflect the state of both fields at the present time. Certainly distinctions between the techniques used by social assessment and public involvement are becoming less pronounced. In the past, public involvement relied heavily on meetings, workshops, and advisory committees to obtain information, while social assessment relied on field surveys combined with the use of secondary sources. But there is increased use of interviews as a means of getting public involvement information, and many social assessors are using workshops as an effective method for gathering social assessment information.

Because of this strong complementarity, it is important for the social assessor and public involvement staff to communicate regularly. Among the possible ways in which the two can work together are the following:

1) Social assessment interviews can be designed to ask questions that are important to the public involvement program.
2) Workshops held by public involvement staff may be structured in such a way that they also gather social information.
3) The social assessor may be able to use an advisory committee to help interpret the social information.

Public involvement can provide the decision-maker with information about the opinions of politically active or powerful groups or individuals, while social assessment can provide information about opinions in the broader community.

4.5 Social Assessment and the Assessment of the Physical Environment

There are fewer close connections between social assessment and the assessment of the physical environment, but there is one primary area in which social assessment can make a contribution to the assessment of changes in the physical environment. It is not enough to know that a project will impact 1,500 acres of rangeland, two burial sites, and fifty acres of riparian habitat. It is also necessary to know whether that is significant or important and to whom. This significance is partly determined by technical evaluation, but inevitably a judgment

about significance has to do with values. Both social assessment and public involvement can contribute to an understanding of the significance the public places upon the various impacts the proposed action will have on the physical environment.

5. An Overview of the Social Assessment Process

5. An Overview of the Social Assessment Process

5.1 Introduction

Throughout this guide, social assessment is referred to as a process. Social assessment should be a series of research activities that have different objectives at different stages of the particular decision-making process being implemented. Limiting the use of the assessment to only one aspect of this process divorces it from the way decisions are made (no matter what the proposed action) and almost guarantees that the assessment will be of limited value.

The focus and content of an assessment varies greatly depending on the type of actions proposed and the type of decisions to be made. Learning to design a social assessment process appropriate to both the type of proposed action and the particular decision being made is the first major social assessment activity. The ability to evaluate the situation and design an effective approach is critical to the ability to conduct a good social assessment.

5.2 General Principles

Practical experience with social assessment reveals several general principles that should be kept in mind when designing a social assessment:

1) Different assessment activities are appropriate at different stages of the decision-making process. Social assessment, like most applied social research, evolves through stages. Assessment activities should vary by decision level, stage in the decision-making process, and type of proposed action. The assessment activities needed at each new stage in the decision-making process must be formulated in light of what has been learned during the preceding stages, reframing and reshaping the questions that are being addressed.

2) In general, social assessment activities increase in level of conceptualization and use of quantitative technique as the decision-making activity progresses. In the early stages of decision-making, a broad conceptual approach and qualitative or simple quantitative methods are usually appropriate. As the

decision process becomes more focused, the social assessment effort may either become more focused and rigorous in design and technique, or it may be reduced or terminated if previous assessment efforts have shown social effects to be insignificant.

3) The social assessment effort must be well integrated with the public involvement effort, or it must subsume the public involvement responsibilities. Because of its subject matter and its methods, social assessment involves much public contact. People who come in contact with the social assessor want to know about the proposed action, and they may need information from the assessment effort. Therefore, the social assessor must be well acquainted with the public involvement program or must assume some public involvement tasks. If not, the social assessment effort will suffer.

4) The social assessment must be well integrated with the decision-making process at all levels. If the social assessment loses touch with the decision process, it may research the wrong questions, expend its resources on noncritical issues, or alienate key personnel. This increases the danger that the assessment will be ignored by the decision-makers because the information is not useful or its utility is not clear, or that its significance will be discovered too late to be effectively incorporated into the decision-making process.

5.3 Integrating Social Assessment with the Decision-making Process

In order to show how social assessment relates to the decision-making process, a simple five-step decision-making process is described. These five steps will be common to most decision-making processes that are affected by NEPA regulations, although the particular terminology may differ. What is important is to articulate and understand the steps so the social assessment can be integrated with the decision-making process.

The five basic steps can be described as follows:

1) Problem identification and scoping. The purpose of this step is to understand the nature of the decision to be made and to identify the major issues and problems that need to be addressed. Social assessment can contribute to this effort by identifying the nature of the social consequences that might need to be considered and by providing information about the general magnitude of possible social effects.

2) Formulation of alternatives. The purpose of this step is to specify the range of alternatives to be considered and to identify the alternatives that fall within that range. This step is often divided into two parts -- formulation of broad, conceptual alternatives and formulation of specific alternatives. Social assessment can contribute to this effort by identifying new alternatives that either have been suggested by or would be desirable to the various stakeholder groups in the affected area and by identifying specific aspects that make alternatives unacceptable, unfeasible, or particularly advantageous. Social assessment can also provide information about the positions of organizations and local stakeholder groups toward the various alternatives. In addition, social assessment can provide preliminary information about the nature, magnitude, and meaning of the social effects likely to result from the types of alternatives being developed.

3) Evaluation of alternatives. The purpose of evaluating the alternatives is to identify the impacts likely to be caused by each, to understand the meaning of those impacts to the various affected parties, and to compare the consequences resulting from each of the alternatives being considered. Social assessment provides the evaluation of the social impacts of the proposed alternatives and, in addition, may also provide information about the meaning of changes forecast in other areas as well (for example, wildlife and recreation).

4) Formulation of mitigation measures and evaluation of mitigated alternatives. The purpose of this step is to identify measures that could be used to mitigate the adverse effects and enhance the positive effects of the proposed alternatives, to evaluate the effects of the mitigated alternatives, and to select a preferred alternative. Social assessment contributes to this task by identifying ways to mitigate or enhance the social effects of the alternatives, by assisting in evaluating the feasibility and acceptability of various mitigation measures, and by forecasting and evaluating the impacts likely to be caused by the mitigated alternatives. Social assessment may also compare the social consequences of the various proposed alternatives.

5) Design and implementation of a monitoring program. The objective of this step is the identification of opportunities or needs to document the consequences of project implementation. Within natural resource agencies, monitoring programs may be designed to guide future agency decisions relative to resource programs such as rangeland and forest management. Social assessment may be in a position to identify the information needed to determine what social effects are actually occurring and to provide an evaluation framework to determine whether and

what additional mitigation measures are required. In situations where the agency sponsoring the assessment lacks direct authority to effect mitigation measures, the information obtained from the social assessment may be useful for the design of monitoring efforts by state or local authorities.

5.4 The Social Assessment Process

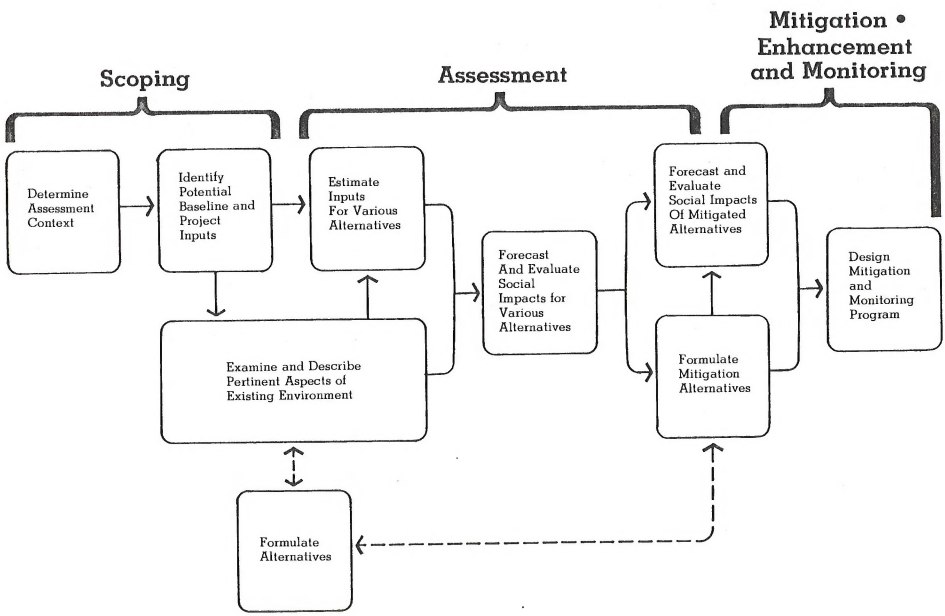
Social assessment is an analytic process that can be applied to each step of the decision-making process described above. In designing an assessment effort that responds to the needs of the decision-maker, it is important to adapt the level and scope of the social assessment to fit the particular phase of the overall decision-making process in which the assessment effort occurs.

In general, the analytic social assessment process is organized in a manner similar to the overall decision-making process and can be divided into three major activities -- scoping, assessment, and mitigation and monitoring, as shown in Figure 5-1. The scoping activity begins by determining the decision-making context in which the assessment will be done. This is followed by preliminary estimates of the potential baseline and proposed action inputs that might cause social effects which would have to be covered in the assessment. The scoping activities include collection of initial information on the existing environment and determination of the appropriate geographic and topical focus of the social assessment effort. The formulation of possible alternatives based on this initial data may also be included as part of the scoping activities.

If the scoping process shows it justified to continue, the assessment stage begins with an in-depth examination of the pertinent characteristics of the existing social environment. This may be preceded or followed by participation in the formulation of alternatives, where information from the scoping and organization of existing environment are applied to the task of identifying alternatives for further consideration. Once specific alternatives are developed, an estimate of direct inputs for each of the proposed alternatives is made. Using the

FIGURE 5-1

The Social Assessment Process



information about the existing environment baseline conditions and the direct inputs, the anticipated social effects of each alternative are forecast and their meaning is evaluated. This is the major goal of the social assessment.

After the impacts have been forecast and evaluated, they are examined to determine whether they can be mitigated or enhanced. Mitigation or enhancement measures are then formulated for each alternative, and the mitigated alternatives are then reassessed to identify and describe the social effects that would remain after mitigation. Any necessary mitigation and monitoring programs are designed and implemented. Each of these steps is described in detail in Section II.

SECTION II:
A FRAMEWORK FOR SOCIAL ASSESSMENT

6. Defining the Context of the Assessment

6. Defining the Context of the Assessment

6.1 Introduction

Although the overall assessment process described in Chapter 5 is well established, assessments vary greatly in their purpose and in the way they are organized. Before starting the actual assessment effort, it is important to take some time to make sure that you understand how the particular assessment you are to work on is organized, including: (1) why the assessment is being conducted, (2) how it fits into the overall organization and objectives of the sponsoring institution, (3) what types of decisions are to be made, by whom, and when, (4) the procedures that are to be followed, since these determine how the work is to be done, what the individual responsibilities are, and how the results are to be presented, and (5) the relationships and organizational links between the assessment team, the assessment team leaders, and the decision-makers (for example, the regional coal team). These relationships define many aspects of your job, and it is often up to you to determine what they are and how they can be used.

This chapter discusses the major questions about purpose, organization, and procedures that should be answered before you begin the assessment effort. In many cases, you will already have many of the answers, either from previous experience or from organizational information and meetings. Nevertheless, you may find it useful to review the topics presented in this chapter before starting the assessment.

This process has three benefits. First, it ensures that there are no important, unanswered organizational questions that could lead you to make poor assessment or organizational decisions. Second, it prompts you to think through the assessment process from the perspective of the organization and the decision-maker, which will increase your ability to focus the assessment and the presentation of results. Third, it provides those who are responsible for directing the assessment effort or

supervising other workers an outline of the information that should be made available and reviewed before the technical assessment effort begins.

Two general topics are covered in this chapter:

1) The decision-making context, or what the assessment is to do and when

2) The procedural context, or how the work is to be done and the results are to be presented

6.2 Decision-making Context

In order to design a responsive and effective social assessment effort, it is important to understand the organizational and decision-making context in which the assessment is to occur. A good starting point is to define for yourself the purpose and scope of the assessment task.

6.2.1 Define the Assessment Task

Assessment information is used to inform a wide variety of decisions. To determine what type of assessment effort is appropriate, the overall purpose of the assessment and the planning or decision-making process to which it applies must be understood. In some cases, the purpose is clearly specified. In others, the purpose has not yet been clearly defined and requires additional evaluation and discussion. Frequently, assessments are expected to serve multiple purposes, so it is important to make sure that all the objectives for the assessment are clear.

A major factor which influences the purpose of an assessment and determines how it fits into the organization is the relationship between the organization conducting the assessment (the Bureau of Land Management or similar organization) and the organization that would implement the actions being assessed. Three types of relationships are common for the Bureau; each is generally associated with a particular type of decision.

1) Resource management decisions. The actions being assessed would be implemented by the organization conducting the assessment. Examples include management framework plans or resource management plans that would be implemented by the BLM.

2) Leasing decisions. The actions being assessed would be implemented by a third party, but would depend upon an offering of federal resources by the organization conducting the assessment. Examples include coal or timber leasing decisions where the action would be implemented by a private company.

3) Permit decisions. The actions being assessed would be implemented by a third party upon issuance of a permit by the organization conducting the assessment. Examples include a company applying for a permit to build a mine and power plant where the agency conducting the assessment is responsible for issuing the permit.

Figure 6-1 summarizes some typical characteristics of assessments for each of these three types of decisions, indicating the extent of information typically available about the characteristics of the proposed action and the usual intensity/detail of the social assessment effort. This information should not be taken as absolute, but should be verified for each assessment.

Throughout the assessment process, it is important to determine the purpose and the audience of the assessment and to focus the effort appropriately. In most cases, the most effective way to address these questions is to discuss the assessment task and your role with the team leader or your supervisor. It is often useful to ask for references to pertinent documentation.

6.2.2 Determine How the Assessment Effort Is Organized

Once the overall purpose of the assessment effort and its relationship to the actions/decisions of the organization have been defined, the next step is to determine how the assessment effort is organized and how the assessment team and its leaders fit into the overall structure of the organization. Some common arrangements include the following:

1) Formation of a special assessment team. For some assessments, special teams are formed which have a particular structure and relationship to the organization. In this case, it is important

FIGURE 6-1

Characteristics of Social Assessments

CHARACTERISTICS OF THE ASSESSMENT	TYPE OF DECISION		
	Resource Management Decisions	Leasing Decisions	Permit Decisions
Source of proposal	BLM	BLM with developer input	developer
Availability of information on direct project inputs	low	moderate	high
BLM role	active	cooperative	reactive
Products of scoping	management issues more than assessment issues	management issues more than assessment issues	assessment issues more than management issues
Typical social assessment intensity	low, generic	moderate to high	high to moderate
Ideal team structure	interdisciplinary (team members collaborate to develop alternatives)	multidisciplinary (team members assigned to specialized assessment tasks)	multidisciplinary

to include the team leader among the decision-makers, whose schedule and objectives should be understood.

2) Utilization of staff in their normal positions. In some cases, no special team is formed, and the assessment is conducted by staff members as part of their normal assignments.

3) Supervision of a third party. In still other cases, the actual assessment is conducted by another organization (e.g., a contractor), although responsibility for supervision and/or review is maintained by the sponsoring agency.

Whatever the arrangement, it is important that the organization of the overall assessment effort be clearly understood. This requires that the following points be clarified:

1) Authority structure. Who is responsible and authorized to do what?

2) Decision-making structure. Who will be making which decisions regarding the proposed alternatives and the assessment effort?

3) Information flow/communications. How is information to be obtained and disseminated? Who will have access to what information and when?

4) Organizational relationships. How is the assessment staff to relate to other organizations (e.g., regional coal team, other participating agencies, etc.)?

Because these arrangements vary so greatly, no effort is made here to describe all the alternatives that might be encountered. However, it should be noted that assessments are often conducted in short time frames and are subject to intense public scrutiny, political pressure, and frequent changes in organization and procedures. It is your responsibility to ask those questions that will enable you to perform your work efficiently with as little organizational friction as possible. It is important to remember that your ability to "read" the organization, to figure out how things work, and to work within the structure will often be interpreted as an indication of both your ability to understand the communities in the impacted area and your skill in obtaining information about organizational and interpersonal relationships in a diplomatic and efficient manner. Consequently, it pays substantial dividends to attend to this problem and to approach the definition of the assessment's organizational context with care and tact.

6.2.3 Identify What Information Has Been Gathered Previously

In many cases, the particular assessment being undertaken is part of a decision-making and planning process which involves a series of interrelated evaluation and decision-making steps. In order to proceed efficiently, it is important to determine what work has already been done, what alternatives have been evaluated, and what information has been gathered.

An important part of this task is to determine what decisions have already been made. This information serves several functions: (1) it prevents wasting effort on alternatives or decisions that have been discarded or already addressed, (2) it provides useful evidence about the type of information that has already been gathered and about how the information was used by the decision-maker, and (3) it helps delineate the purpose and scope of the assessment as well as the range of alternatives to be evaluated.

Sometimes you will need to obtain and review the work conducted for previous social assessments in the decision sequence: for example, site-specific analyses conducted before cumulative assessment for a regional coal sale. Usually, you will review information obtained from other aspects of the planning and decision-making process, such as formal scoping meetings, public response files, and records of consultations with surface owners. At this stage, it is not necessary to review this material in detail, but merely to determine what is available and scan it for a general understanding of its contents.

6.2.4 Determine What Subsequent Assessments Will Be Done

Understanding how the current assessment effort fits into the overall decision-making process requires looking forward as well as back. The purpose of the assessment, and hence the appropriate level of detail and analysis, are affected by the effort's position in the overall decision-making process. Consequently, it is important to establish the expectations for this assessment and to keep in mind that not everything

that should be addressed must be covered at the same level of detail in each assessment.

6.2.5 Identify Issues Pertinent to the Decision

As part of the review of previous information and decisions, you should identify any issues that have developed, especially those which have affected earlier components of the decision or the decision-maker. Once such issues have emerged, care must be taken to address them systematically, clearly documenting that they were examined and why they were dismissed or carried forward into the analysis.

In addition to identifying issues that have already emerged, the social assessment process provides opportunities to identify issues that may emerge. Sometimes these issues have not previously been noted by the decision-makers. One important function of the social assessor can be to identify such issues, preparing a short, to-the-point memorandum or issue paper to brief the team leader and/or others about impending problems. As with other interorganizational communications, it is important to keep in mind organizational objectives, communication protocol, and procedures.

6.2.6 Determine the Decision Schedule

Frequently, a number of interim decisions are made during the planning or decision-making process. In order to respond in a timely fashion, the assessment team needs to understand not only the sequence, but also the schedule, of the decisions to be made. The decision schedule is always important for planning the assessment effort, but it is particularly important if there are to be interim decisions, such as finalizing leasing targets, establishing decision criteria, or modifying the proposed action, that will affect subsequent assessment efforts.

Since assessments generally deal with proposed future actions, changes and delays in decisions and the availability of information are common. It is also common for the final deadlines to remain fixed while internal deadlines slip. Therefore, it is very useful to make a prac-

tice of (1) knowing the decision schedule and schedule for information availability, (2) monitoring the decision-making schedule and the alternatives under consideration, (3) evaluating whether any interim decisions would affect your assessment, (4) being prepared to reorganize the assessment to work on the areas least affected by the uncertainty of interim decisions, and (5) documenting the reasons for delays in your work due to lack of information or changes in information.

6.2.7 Identify the Decision-making Criteria

An underlying objective of all of the previous questions has been to determine the criteria that will be used in decision-making. In some cases, formal, specific criteria are developed to guide the decision-makers. These criteria may be established at the beginning of the assessment effort or at some point in the process. If such criteria are developed, it is obviously important to conduct the assessment and present results in a manner that conforms to these criteria. More commonly, such criteria are not formally established. In these cases, an additional part of the assessment team's task is to determine the criteria that will be important to the decision-maker and that also adequately represent the assessment's findings.

6.3 The Procedural Context

This section focuses on the organizational procedures of particular importance to an assessment effort. There will undoubtedly be other organizational procedures that must be followed to maintain efficiency and good working relationships. As indicated previously, your skill in effectively "reading" and working in the organization is often interpreted as an indication of your professional ability. Therefore, paying attention to procedures and being able to fit into the organization is important and can yield many benefits.

6.3.1 Define the Structure of the Assessment Effort

The organization of the assessment effort is generally determined by the type of decision to be made. Ideally, the thing to do at this stage

is to sit down with the assessment team leader (and, if possible, the decision-maker) and review the task at hand, discussing the types of decisions being considered, the specific decision-making or planning process, and the assessment procedures and schedule to be followed. As part of this discussion, agreement about the role and responsibilities of the social assessor should be reached.

Figure 6-1 shows the general structure of an assessment effort and can be used to identify the particular characteristics of the current effort. The composition of the assessment team varies according to the type of action being proposed, and the distribution of responsibilities among team members can vary widely. Consequently, as part of the discussion with the assessment team leader or others working on the socio-economic component, be sure to clearly establish what areas the social assessment component is to cover. In some cases, demographic, facilities/services, and fiscal analyses are included as part of the social assessor's responsibilities. If this is the case and you need assistance, guidance for conducting an assessment in these two areas is provided in appendixes A and B.

6.3.2 Define the Schedule and Coordination Procedures

Now it is time to become specific about schedules. Find out when information and directives will be provided and when information and reports have to be prepared. Because the social assessment requires information from other components (particularly the economic, demographic, facilities/services, and fiscal analyses) and ideally would be conducted working with those responsible for this information, the schedule and coordination procedures in these areas are particularly important for planning the assessment effort. In some cases, the schedules, responsibilities, and coordination procedures will have already been established and will be available in the form of memos or directives. In others, you will have the opportunity to participate in their development. Recognize that your role in this process may vary from one occasion to the next.

6.3.3 Establish the Assessment Approach

Once the assessment effort is launched and responsibilities for technical areas are being assigned, it is important to make sure that you understand how the assessment is actually to be done, what is to be included, and (equally important) what is to be excluded from the assessment. Useful questions to ask include the following:

1) What is the scope of the assessment? Now is the time to make absolutely clear what the purpose of this specific assessment effort is.

2) What is the study area? If the study area has already been established, make sure that its location and boundaries are clear. If the study area has not yet been identified, find out how and when this will be done. In some cases, the study area boundaries will be affected or determined by the location of social effects. In some cases, different study areas are appropriate for different disciplines.

3) What unit of analysis is to be used by the different components in their analysis and in the reports? It is important to know whether the unit of analysis and data forecasts will be at a community, county, or regional level. It is also important to know whether the analysis will be conducted at one level (for example, communities or individuals), but the results will be presented at another level (for example, counties or region).

4) How are the effects to be evaluated? Is there a scheme for weighting or comparing effects? In some assessments, the effects must be summarized according to established criteria, such as duration (long vs. short term), extent (local vs. regional vs. national), magnitude (larger vs. small), or valence (positive vs. adverse). Obviously, it is useful to know if your results must be translated into such a scheme.

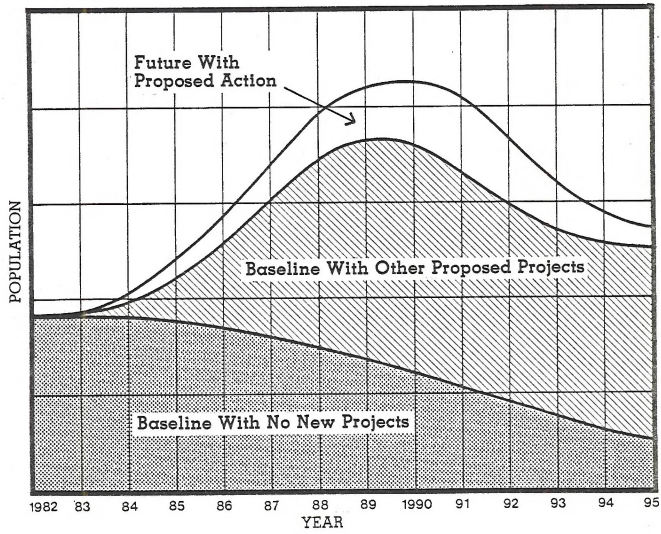
5) How are other actions proposed for the study area to be addressed? This is also known as the "cumulative effects" question. As discussed in Chapter 5, impact assessment is based on a comparison between the conditions that would occur without the proposed action (the baseline) and the conditions that would occur with the proposed action. In the western energy states, problems have developed about how to define the "baseline" or without-project conditions in areas where a number of large scale but uncertain projects have been proposed but have not yet begun to be implemented. A similar problem arises when assessing multiple actions proposed for the same area. Figure 6-2 illustrates this situation.

 In order to address this cumulative effects question, you must know:

 -- What is to be included in the "baseline" forecasts, and how this is to be determined.

FIGURE 6-2

Possible Baseline and With-action Conditions



-- How the "cumulative" effects will be allocated among the different proposed actions. For example, is the particular proposed action to be addressed as the final increment or as a percentage of the total change? This distinction not only affects the manner of discussion, but it may also affect the allocation of impacts.

The answers to these questions often depend upon the type of decision to be made. At a preliminary stage (e.g., the tract ranking process of the coal management program), it may be more efficient and useful to consider the effects of leasing each tract in isolation, even though the proposed action is to lease a combination of tracts.

In most cases, the decision about what to include and how to attribute the effects will not be yours to make. However, it is very important that you clearly understand what you are to include as part of the baseline and how the effects are to be attributed to different projects.

6) How is the assessment to be documented? Obviously, before work can commence you must determine what the assessment is to produce, what reports are required, and when they are required. In order to plan your time, it is important to establish a clear understanding about the reports that you are to prepare, including their expected length, schedule, and format.

A variety of reports may be required, including:

-- A work plan, laying out what you plan to do and your schedule;

-- Progress reports, summarizing what you have accomplished and how you are proceeding on your work plan;

-- Issue papers, highlighting topics of particular importance to decision-makers;

-- Technical reports, describing methods and results in some detail; and

-- Impact statements/environmental reports, presenting your methods and results in specific ER/EIS format.

Early in the process, it is also very useful to determine what procedures and formats are to be followed to document and reference personal communications, secondary sources, methods, and assumptions and whether there are particular rules regarding report organization or format, use and format of tables, and style. Although these often seem like minor administrative details, it can save considerable inconvenience and frustration if you follow the procedures from the beginning.

7. Scoping the Social Assessment Effort

7. Scoping the Social Assessment Effort

7.1 Introduction

Chapter 6 described how to determine the purpose, organizational context, and procedures for the assessment. This chapter discusses how to determine the potential scope of the assessment -- the geographical area of concern, the social phenomena which are most likely to need an in-depth analysis, the units of analysis that should be addressed, and the appropriate level of detail for the assessment effort.

This preliminary assessment or scoping is important because it assists in making effective use of available resources. By considering the general type and magnitude of the potential inputs and the types of social changes these inputs could cause at the beginning of the process, as well as the time and budget available for the assessment effort, the assessment can be focused more effectively, and costly mistakes and false starts can be avoided. It is useful to complete the process described in this chapter whether or not it is required by the organization. An important function of these initial screening steps is to help you think through the task you are undertaking and develop an efficient plan for completing it.

After completing the screening and discussing it with your supervisors, you will have determined the general magnitude of the assessment effort, and you will have focused your attention, both geographically and topically, using a documented and legally defensible process. The major steps to be completed include the following:

1) Determine what the potential inputs from the proposed alternatives or types of alternatives, (i.e., people, jobs, income, resources, regulatory changes, organizational factors, changes in health and public safety) are; they differ considerably among the types of actions you may need to assess.

2) Locate readily available secondary data and information about the alternative(s) and the social environment.

3) Review information and estimate the social impacts that may occur (the social organizational model can be used to estimate how community resources, social organization processes, and community or individual well-being might be changed by the potential inputs).

4) Conduct a short field trip to check your estimates of changes which might occur and to familiarize yourself with the study area.

5) Estimate changes in people, jobs, income, resources, organizations, and public safety that are likely to occur without the proposed action (baseline) for the areas or communities potentially affected by the proposed action.

6) Reestimate potential changes based on observations from the field trip.

7) Prepare a detailed work plan for the assessment.

7.2 Determine Potential Inputs

The first step of the screening process is to determine the proposed action's potential to cause real or perceived changes in any or all of the following:

1) The number and characteristics of people in the affected area

2) The number or types of jobs

3) The level or distribution of income

4) Direct changes (not those resulting from population change) in the resources of:

 -- The private sector (e.g., housing, commercial resources, recreational resources)
 -- Local or state government (e.g., revenues, facilities)
 -- Public resources (i.e., land, air water, wildlife, and recreation resources)

5) Organizational and regulatory context (e.g., changes in regulatory control, change in public or private sectors, or changes in policy)

6) Public health and safety (e.g., floods, landslides, disease, etc.)

The purpose of this step is to focus attention on the important issues and to help determine the appropriate unit of analysis.[1] If the assessment task is to formulate and evaluate broad alternatives or to participate in an overall scoping process, the scoping would probably be done in general terms, identifying only the nature, general magnitude, and approximate geographic location of the inputs. If the assessment task is to prepare a detailed assessment of specific alternatives, this general scoping has probably already been done and can be utilized to determine the potential inputs more specifically and at a disaggregated (possibly community) level. It will be useful from the onset to determine the general pattern of the potential change in these factors. Is it likely to be gradual and steady? Rapid and erratic? Rising to a peak, then dropping sharply? These patterns, and the degree of uncertainty associated with them, also affect the social consequences that will result. Attention should also be given to the anticipation of change and the potential for the proposed action to generate controversy. In most cases, this will result from perception or apprehension of change in one or more of the inputs identified above.

7.2.1 People

One of the principal causes of social impacts is change in the number or characteristics of people living in a community (especially from large-scale resource development activities). This can occur through the introduction of new jobs, through the removal of residents (as sometimes occurs with water projects or when resources are withdrawn), or by the retention of residents who would otherwise have left the area. Figure 7-1, included in Section 7.5, provides a format to document the analysis used to determine the potential for changes in the number or characteristics of people.

[1]For example, if the assessment deals with grazing regulations, it is likely that the major project inputs would be changes in the level or distribution of income, changes in resources, and changes in the organizational and regulatory context and that the focus of the assessment would therefore be directed to the effect these changes would have on the well-being of affected individuals. However, it would be important to confirm that the changes would not be drastic enough to affect the communities in which these individuals lived.

For a large study area, it may be helpful to first conduct this process for the entire area, in order to determine which portions are likely to receive most of the change, and then to repeat the process in more detail for those portions. Much of the necessary information should be available either from the description of the proposed action, through discussions with the economic/demographic analyst, or by studying areas with similar projects. A discussion of the factors that may influence the number and characteristics of people that will in-migrate, move, or remain as retained out-migrants is included in chapters 9 and 10 and in Appendix A (Demographic Forecasting and Analysis).

7.2.2 Jobs/Occupations

The number and type of jobs available in a community or area can strongly influence lifestyle, economic opportunity, and perceptions of the area. Consequently, the potential to affect the number or type of jobs, technology, and the occupational structure of an area (such as through introduction of large numbers of mining or construction jobs in an agricultural area) indicates a potential for social effects that should be examined. First, it is necessary to determine the probable magnitude of change, given the baseline characteristics of the study area.[1] Figure 7-2 in Section 7.5 provides a format for documenting this step of the screening process.

Although economists tend to be more attuned to changes in employment by industrial sector and income than by occupation, in most cases describing employment implications will be the responsibility of the economist. Therefore, the economist should have information about the employment characteristics of the existing environment and will be forecasting employment by industrial sector (e.g., mining, construction, services, manufacturing) for both the baseline and the with-action

[1]It is worth noting that changes in jobs (and income) are frequently related to changes in population, especially for large-scale energy projects. However, this is not necessarily true; hence, the separation of the factors in the screening process.

conditions, if the changes that would be introduced by the proposed action warrant such effort. The change in job characteristics is often a major issue in rural communities. At this stage, the most efficient approach would be to meet with the economist to discuss the magnitude of change that could occur.

7.2.3 Income

A third, related factor that can result in social impacts is a change in income level or in the distribution of income among area residents. Again, the principal responsibility for forecasting baseline and with-action income levels is usually the economist's, but it is possible that the economic/demographic analysis will pay little attention to the distributive effects of income. Changes in income levels, such as those resulting from grazing regulations or from the introduction of many new unionized jobs, can be important to the social assessment. They can affect the economic and material resources available to residents and thereby affect lifestyle, material well-being, and other behaviors which determine an area's social environment. Change in income distribution can generate conflict and affect the social organization of the area. The question to resolve is whether the proposed action has a significant potential for changing income levels or distribution. Precise quantification and analysis of that change comes later. At this point, the object is to determine potential sources of social impact in order to target the assessment effort more effectively. A sequence for including income change in the scoping process is presented in Figure 7-3 in Section 7.5.

7.2.4 Resources

Analyzing resource availability and cost is very complex. At this stage of the screening process, the analysis is limited to consideration of potential changes in resources (such as tax revenues, access to federal land due to wilderness designation or changes in grazing regulations, provision of agency or company-sponsored housing, etc.) that would result directly from the proposed action. This input category

includes changes in the fiscal, facilities, or natural resources that are due directly to the proposed action. Property tax payments, agency or company-provided housing or equipment, removal of recreational facilities or areas, and inundation of land are examples of resource changes that would fall into this category. If the assessment is not addressing a specific project, it is likely that it will not be possible to accurately estimate the change in resources, although it should be possible to identify the general type and magnitude of the changes that could occur. Forecasts of the resource inputs and how they would affect the cost and availability of facilities and services in the community are generally made by the economist (as part of the fiscal analysis) and the facilities/services analyst. Because the resource input is frequently one of the inputs most easily changed (for example, by decisions to prepay taxes or to construct housing), it is often the focus of mitigation efforts. At this point, the object is to identify sources of social effects, not to determine the social effects themselves. Questions which can be asked about the proposed action for this factor are shown in Figure 7-4 in Section 7.5.

7.2.5 Organizations and Regulations

A proposed action can introduce new organizations into an area (such as new companies and businesses or new regulatory agencies). It can also result in the introduction of new regulations or the modification of existing ones and thereby affect the residents of the local area. An issue that frequently emerges when national firms or federal or state government are involved in a proposed action is the effect such involvement will have on local autonomy. Figure 7-5 in Section 7.5 shows possible questions for determining whether this input is likely to be an important factor in the assessment.

7.2.6 Public Safety

The final factor suggested for consideration in the screening is the proposed action's potential to affect health and public safety. As with the other factors, the intent is to consider the direct effects of the

proposed action on public health and safety, not the interactive effects of population increase and service availability. That step comes later. To illustrate, a proposed dam construction can potentially affect public safety by reducing the chance of floods. In general, the social assessor will not be responsible for determining the public safety effects of the proposed action, but since personal and public safety (and perceptions of safety) are important to perceptions of personal and community well-being, it is appropriate to include them as part of the social assessment screening process. Figure 7-6 in Section 7.5 presents the screening format for this factor.

7.3 Determine What Aspects of the Existing Social Environment Need to be Described to Complete the Scoping Process

The previous steps have identified the potential mechanisms by which the proposed action could cause social impacts. These analyses can now be used to determine which communities or areas warrant examination in greater detail. The analysis of direct project inputs can help focus the assessment both geographically and topically, as discussed below.

7.3.1 Geographic Focus

Social effects result from the interaction of changes caused directly by the proposed action (i.e., people, jobs, income, resources, organizational/regulatory context, and public health and safety) with the existing social conditions in the community. Consequently, the purpose of this step in the screening process is to identify the communities or area that may be most affected by the proposed action and to establish geographic priorities. In some cases, the geographic focus of the various assessment components will vary substantially. It is important that the assessment effort be focused on those communities or areas that will be affected by the proposed action.

If the social assessment is part of a preliminary scoping or formulation of alternatives effort for which the potential inputs have been determined at a study area level, the next step is to examine maps of

the study area to determine where the communities or settlements are located relative to the site of the proposed action and to identify those communities or individuals that could be affected by the changes identified in the previous steps. Although it is premature to completely eliminate communities or areas from the assessment process based on this preliminary screening, this simple process can effectively give you an idea of the number and geographic location of the study area communities that will require most of your effort. If sufficient information has been available to determine the potential inputs at a community level, this step will already have been accomplished in Section 7.2, although it is still useful to make sure that the geographic relationship between the site of the proposed action and the communities is understood.

Using this information, it is possible to compile a list of potentially affected communities in order of the magnitude of the effects they will feel from the proposed action. Using the most recent population data available for each community (generally from the U.S. Census or state estimates), other readily available general descriptions of the communities, and advice from other team members who are knowledgeable about the study area, the remaining steps on the screening forms (figures 7-1 through 7-6 in Section 7.5) can be completed.

The principal purpose of this process is to compare the magnitude of the potential action-related change with the characteristics of the communities and area residents and to determine where the relative magnitude of the action-related change could be sufficient to noticeably change conditions in any community. This step calls for judgment. If in doubt, it is generally best to carry a community or area into the next phase of the assessment, with the knowledge that it could require relatively limited effort.

7.3.2 Topical Focus

Based on this review, it should be possible to delineate, for either the entire assessment or particular communities, the major sources of

potential social impact and to determine whether it is necessary to address the community as a unit or analysis. The information from this review can be used to focus the assessment on topics that need to be addressed and to determine what information about the existing environment is pertinent to the assessment. Different types of resource management decisions will require assessments with different topical focuses.

It is important to remember that both the screening and the assessment are analytical, not descriptive, processes. Therefore, throughout the assessment, a continuing effort must be made to identify what information is pertinent to the analysis of the proposed action's social consequences and to avoid extensive reporting of information that is merely background and has little or no direct bearing on the assessment. However, remember that it is important to document this process of refinement and focusing to provide a legally defensible, readily available record of the assessment process. This is useful not only for the organization, but also for your own use. It is frequently useful to be able to review your decisions when preparing reports. Also, if specifications of the proposed action or baseline conditions are modified in the middle of the assessment (as is often the case), such documentation will make it easier for you to incorporate the modifications. A work sheet to summarize the results of screening each of the six factors is presented in figures 7-7 and 7-8 in Section 7.5.

7.4 Obtain Preliminary Information about the Potentially Affected Communities

Using the screening information that has been developed, you now have a better idea of what information you need about which communities or areas. It is at this point that coordination with other members of the assessment team, particularly those involved with the socioeconomic assessment, becomes especially important to avoid duplication of effort, contradictory assumptions, and inefficient use of community contacts.

Depending upon the type of decision-making process, the stage of the assessment, and the geographic area, considerable information about the proposed action, the communities, and area residents' attitudes and perceptions relating to the potential changes may already have been compiled and be readily available from secondary sources. These sources should be identified and examined, to the extent that they are pertinent, before additional primary data are collected.

Examples of such data sources include the following:

1) Previous studies for similar types of actions.
2) Census data, including special censuses.
3) County comprehensive plans
4) Clippings from local newspapers.
5) Employment data, from either the U.S. Bureau of Economic Analysis or state employment offices.
6) Records of public meetings about the proposed action, such as scoping meetings, official public meetings, and hearings.
7) Records of public response to the proposed action or similar proposals.
8) Results of the surface owner consultation process
9) Socioeconomic profiles and other agency materials on the area.

In addition, other members of the team are frequently excellent sources of information.

7.5 Work through the Screening Process

The next step is to work through the screening process illustrated on the following pages in figures 7-1 through 7-8, using the information from the preceding steps. This process can be done at either the study area or community level, as appropriate for the particular assessment effort. If the proposed action under evaluation will place restrictions on the development of an area (for example, wilderness designation), it may be appropriate to consider prevention of change in each input category as well.

FIGURE 7-1

People

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

Could the proposed action:

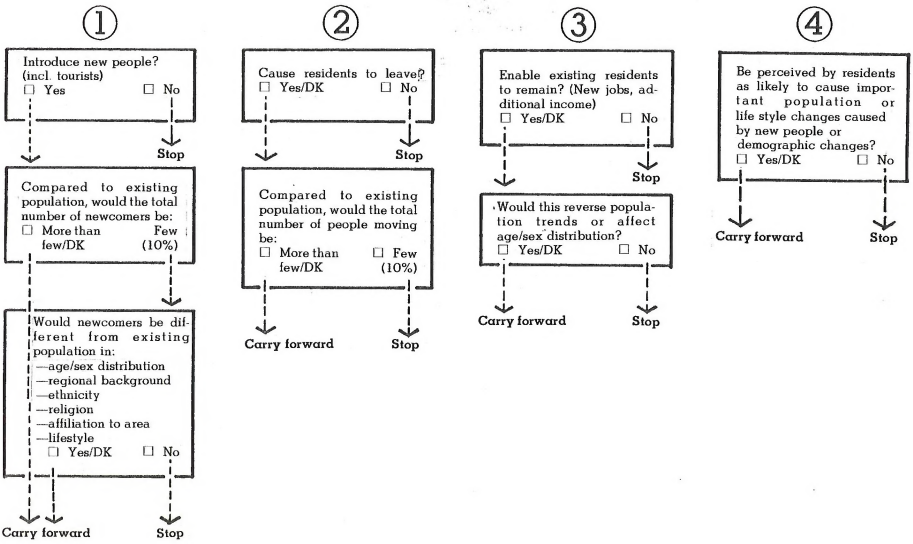


FIGURE 7-2

Jobs

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

Would the proposed action:

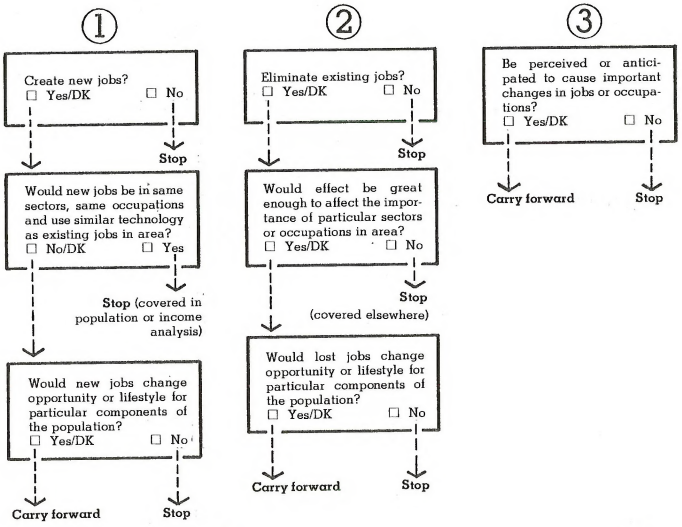


FIGURE 7-3

Income

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

Could the proposed action:

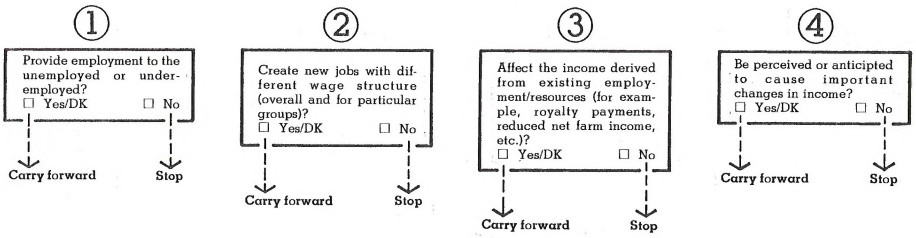


FIGURE 7-4

Resource Availability or Cost

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

Could the proposed action add or remove:

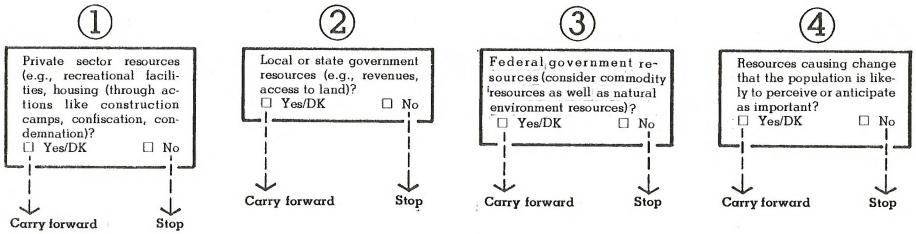


FIGURE 7-5

Organizations and Regulations

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

Could the proposed action:

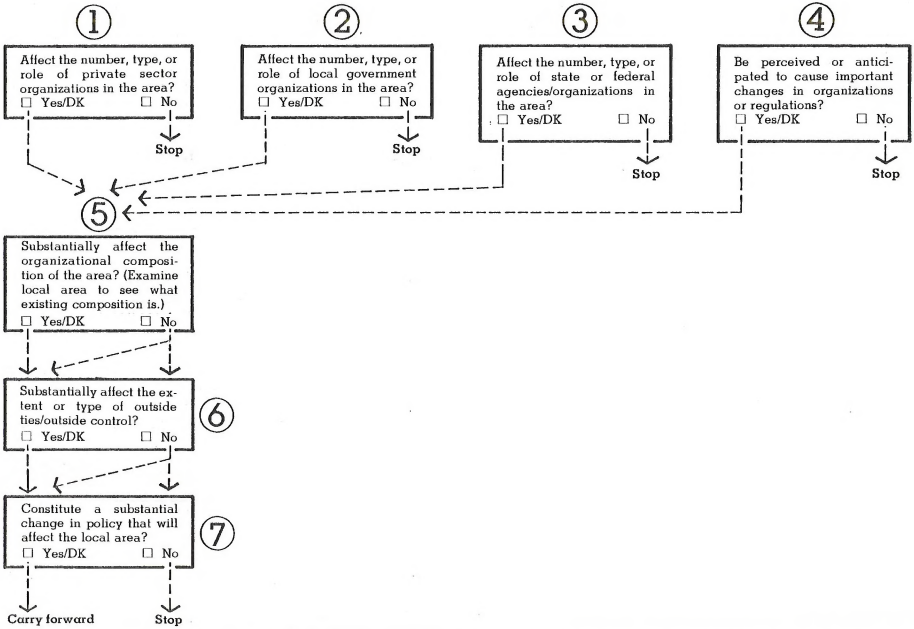


FIGURE 7-6

Health and Public Safety

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

(1) Could health and public safety be affected or perceived to be affected by the proposed action?

☐ Yes/DK → **Carry Forward**

☐ No → **Stop**

FIGURE 7-7

Summary

AREA: _____

COMMUNITY: _____

ALTERNATIVE: _____

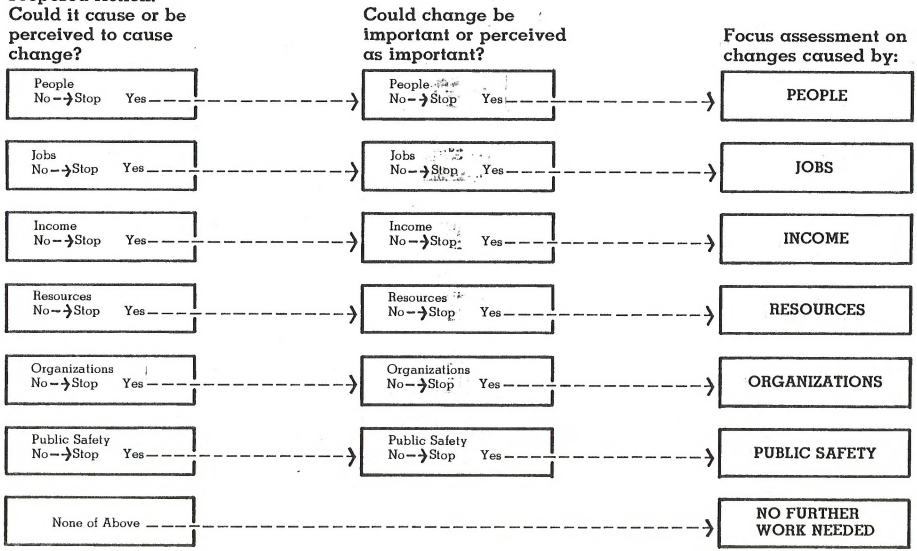


FIGURE 7-8

Summary: Estimated Range of Inputs Across All Alternatives by Community or Area

RANGE OF INPUTS ACROSS ALTERNATIVES						
Communities	People	Jobs	Income	Resources	Organizations/ Regulations	Health/ Safety
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

7.6 Plan and Conduct a Field Trip, if Necessary

If the potential level of impacts warrant it and the schedule permits, it is useful at this time to make a preliminary field trip through the study area. Nothing provides quite the same information as actually seeing a community and traveling through an area. Guidance on organizing and conducting a field trip is provided in Chapter 13.

The purpose of this step is to obtain sufficient information about likely baseline conditions, perceptions about anticipated effects, and the potential interaction between the proposed action and the communities to enable you to focus your effort and develop a work plan for the social assessment component or to document that no further assessment work is required.

7.7 Determine Expected Changes in the Input Categories for Baseline Conditions

Especially in areas where there is other development activity, it is important to forecast changes in the input categories -- people, jobs, income, resources, organizations, and health and public safety -- that would occur even without the proposed action (baseline conditions). As with the potential project inputs, most of this information will be available from the persons responsible for the economic/demographic and facilities/services components, since they will be forecasting these factors as part of the baseline conditions for their analysis.

The purpose of this step is to determine whether the changes in the baseline conditions could either diminish (and make irrelevant) or amplify (and make more important) changes potentially caused by the proposed action. It should be noted that the direction of this effect can be influenced by the manner in which baseline changes are considered. For example, if the introduction of several energy development projects is included as part of the baseline condition for a currently agricultural area and the proposed action is a coal mine, considering the baseline as "given" could result in identification of few social effects from the coal mine, since most of the change would appear to have

already occurred prior to introduction of the proposed action. All members of the assessment team need to be alert to such assumptions, making sure their own forecasts address the most realistic case possible, given the organizational context of the particular proposed action.

7.8 Reevaluate Screening Results

Based on your review of the secondary data and the preliminary field trip (if one was made), you should reevaluate the screening decisions and make your determination of the geographic and topical focus of the assessment. If the results of the secondary data review or field trip identified any new issues that are potentially significant for the assessment or the decision-maker, it may be useful to prepare a brief (two- to three-page) summary of your findings and conclusions and to review it with the assessment team leader and possibly the decision-maker. It is important to make this summary succinct and to the point.

7.9 Develop a Work Plan

You should now be in a position to develop a work plan for your assessment or to document that no further assessment work is required. Developing a work plan is particularly useful because it forces you to think through the entire assessment effort and figure out how you will allocate your time and budget among secondary data analysis, field work (including primary data collection and analysis), impact analysis, and report preparation activities. Matching your level of effort to the schedule of the assessment often requires you to make trade-offs in terms of geographic or topical focus or level of detail. It is important that these trade-offs are based on (1) a clear understanding of the purpose of the assessment and the level of detail required and (2) a careful analysis of the questions raised in the screening process. If you are in doubt about the relative importance of different aspects of the assessment, it may be wise to discuss them with the team leader or your supervisor.

7.10 Conclusion

After working through the steps described in this chapter, you should be in a position to work through the social organization model shown in Figure 3-1 to determine where your attention should be focused. For some resource management decisions, attention will focus on the relationship between direct project inputs and individuals' well-being, after documenting that the type of inputs from the proposed alternatives will not affect community resources or social organization. In these cases the assessment effort is likely to be more limited and to depend heavily upon economic and/or land use analyses and the attitudes and perceptions of the affected population. For other types of alternatives, it will be necessary to address all components of the model, although the level of detail will vary according to the particular purpose of the assessment being conducted. Whatever the results, the conclusions reached from the scoping process should be used in the remainder of the assessment effort, including selection of the appropriate aspects of the guide.

8. Formulating Alternatives

8. Formulating Alternatives

8.1 Introduction

In some cases, you may be part of a team to formulate the alternatives that will be presented as proposed actions. This chapter discusses the roles and responsibilities of the social assessor in this process and provides guidance on how social information can be used in the formulation process.

The purpose of this process is to identify the full range of alternatives that should be considered and to assess the impacts of each so they can be modified before the final alternatives are specified. The process is designed to prevent situations in which (1) alternatives that could have been discarded are carried forward through the assessment process, thus increasing cost and prolonging uncertainty, (2) the full range of alternatives does not get considered, or (3) features are included or excluded from alternatives which unnecessarily reduce their acceptability or positive effects.

8.2 The Social Assessor's Role in Formulating Alternatives

In general, the formulation of alternatives is carried out by a team. The organization of the team and the particular objectives of the process will vary from one case to the next, and it is important that you determine how the team is organized, what the particular objectives are, and what procedures are to be followed early in the formulation process. A review of Chapter 6 may be helpful.

During this stage the overall objectives are to:

1) Ensure that all alternatives considered desirable or viable by any stakeholder group (including the group formulating the alternatives) are identified;

2) Identify the major environmental and socioeconomic effects, both positive and negative, which might occur for each alternative;

3) Estimate the magnitude of these effects;

4) Identify any major implementation problems or issues due to resource constraints, engineering problems, institutional barriers, or scheduling; and

5) Assess the probable acceptability of the alternatives to the various stakeholder groups.

The ways in which the social assessor can contribute to each of these objectives are discussed below.

8.2.1 Identify All Alternatives

Because the social assessor talks with representatives of the various stakeholder groups, you and the public involvement staff are in a position to receive suggestions about alternative approaches. Also, by the time you have completed the work described in chapters 6 and 7, you will normally have identified a number of alternative approaches. Therefore, the next step is to review your scoping forms and field notes for ideas. In some cases, this will not provide sufficient information, and it will be necessary to follow up by phone or mail or even to make another field trip to clarify the various proposals.

After reviewing the alternatives being considered and the general characteristics of the study area, the next step is to develop a list of the major stakeholder groups in the area and a summary of the preferences or proposals of each group. If there is information for each group, there may be no need for further field work at this stage. If knowledge is missing for some groups, then more work may be needed. The responsibility of the social assessor is to provide a description of the proposed alternatives and the preferences of the major stakeholder groups. This step can be very important to the perceived objectivity of the study. There is no quicker way to discredit a study's objectivity than to fail to consider the proposals of some groups within the community. In this process, the social assessor may be in a position to convey community viewpoints to the other members of the team.

There is a frequent tendency in this process to be too quick to dismiss alternatives as not being viable. It is important to remember that

there is a considerable difference between something not being viable and something not being desirable. Desirability is always defined by the values and role of the particular agency, company, or stakeholder group. Since different groups have different values and roles, it is inevitable that what is desirable to one group may not seem desirable to the other groups.

Agencies are just as likely as sponsors and stakeholder groups to use their values and needs in defining a plan's viability. This can lead to the exclusion of alternatives which should be considered at this early stage if the process is to be credible. One of your responsibilities can be to raise these issues to try to ensure that alternatives ruled out as nonviable are actually nonviable, rather than simply undesirable from some important stakeholder's perspective. Care must be taken, however, not to proceed in a manner which encroaches upon the prerogatives of the decision-makers.

8.2.2 Identify and Consider Major Environmental and Socioeconomic Effects

The next step in the process is to identify the major environmental and socioeconomic changes that would be caused by various formulations of the types of alternatives being considered. (If you are evaluating detailed plans, read Chapter 9.) Since the emphasis is on identifying generic or major effects, this task can often be completed with little or no additional field work than that involved in the scoping process (see Chapter 7).

When the task is to formulate broad and conceptual alternatives, it is sometimes difficult to obtain much detailed information about their potential to cause changes in the six factors identified in Chapter 7 -- the number or type of people, jobs, income resources, organizational/regulatory context, and public safety. Typically, approximations are adequate to allow effective use of the scoping process and to lead the formulation process in the right direction. One responsibility of each team member is to ask the right questions -- for example, Do we know

whether or not all the new people will come in at once or whether there will be a gradual buildup? How do the alternatives differ in the taxes they would generate in terms of jurisdiction and timing? Questions like this will help to clarify the areas which need to be evaluated during the formulation of detailed alternatives. When considering the potential changes that could be introduced by various formulations of the different alternatives, questions need to be asked about (1) community resources, (2) community social organization, and (3) social well-being.

8.2.2.1 COMMUNITY RESOURCES

The following questions will help you identify an alternative's potential to affect a community's resources and therefore will assist in formulating the best possible alternatives:

1) Historical analysis. What has been the history of similar projects in the past or previous efforts along the same lines?

2) Cultural analysis. Are there major cultural conflicts which would be restimulated by any of the plans, such as disturbance of Indian sacred lands, opposition by a dominant religious group, or a threat to the existing economic base of the community?

3) Demographic characteristics. Would any of the plans produce a significant change in the demographic makeup of any community?

4) Facilities and services. Would there be major impacts on facilities and services in any community? Would mitigation of these impacts make the project economically unfeasible?

5) Institutions and organizations. Are there major institutions, organizations, or coalitions which would prefer particular alternatives or act to oppose a particular alternative? Are there gaps or conflicts in the institutional structure which would prevent effective response or guarantee conflict?

6) Economic resources. Do the economic resources needed to complete the project or project-related development exist within the community?

7) Leadership. Would the leaders of the affected communities be able and willing to organize the necessary response?

8) Attitudes towards development. Are community attitudes generally supportive of the kind of development which has been proposed, or has there been consistent opposition to this type of development?

8.2.2.2 COMMUNITY SOCIAL ORGANIZATION

The following questions will help you identify potential effects on a community's social organization and therefore help identify mechanisms for designing more desirable alternatives:

1) Diversity/complexity. Would any of the plans produce major changes in the diversity or complexity of any community, or would little change occur either because the community has already lost its homogeneity or because the changes introduced by the project would be insignificant? In what ways could the alternatives be formulated to alter this outcome?

2) Outside ties. Would any of the alternatives greatly change the organizational or regulatory context in the area? Of particular importance, would any increase the degree to which important decisions about the community are made by people outside the community? Could the community marshall the outside support and assistance it would need? How could the alternatives be formulated to ensure optimal results?

3) Distribution of resources and power. What aspects of the plans would serve to increase or decrease the equity of distribution of resources within the area or the community? Would implementation of any plan strengthen or threaten an existing political or economic elite? How could the alternatives be formulated to ensure that vulnerable populations are not adversely affected?

4) Coordination. Would any of the plans tax the coordinative mechanisms or processes within the community? How could they be designed to be most easily implemented?

8.2.2.3 SOCIAL WELL-BEING INDICATORS

The purpose for considering social well-being indicators when formulating alternatives is to ensure that adequate effort has been made to avoid the creation of conditions that adversely affect well-being while enhancing conditions that improve well-being. Areas to investigate and consider include:

1) Behavior indicators. Can the alternatives be formulated to avoid introducing populations with substantially different patterns of behavior (in terms of crime, alcohol or drug use, or family violence) that would affect community behavioral indicators?

2) Material well-being. Can the alternatives be designed to introduce sufficient income or resources to improve the material well-being of community residents?

3) Perceptions of community. Can the alternatives be formulated so that the changes in occupational characteristics and/or social organization are either viewed positively or are insufficient to affect resident's perceptions of the community?

When contemplating the potential for various alternatives to cause major environmental and socioeconomic effects, it is important to make sure that you are taking into account other activities occurring in the area. If several activities occur simultaneously, the area will experience the cumulative effect of all of them, not only the effects of the alternative under consideration. The findings of this type of review can be summarized quite briefly. An example of such a summary is shown in Figure 7-1.

8.2.3 Estimate the Magnitude of the Effects

When developing or comparing alternatives, it is often not sufficient to merely identify that an effect will occur. It is also necessary to estimate the effect's magnitude and to assess its importance. In this process, the social assessor is called upon to make judgments about which social effects are important. For this reason, the discussion of social effects needs to include an estimation of their intensity and significance. Some social researchers find this task uncomfortable because it requires them to make value judgments. Keep in mind that the social assessor is the person on the team who is best qualified to make a judgment about which social effects are most important. What the social assessor is not in a position to do alone is judge whether a particular social effect is more important than an environmental or economic effect. This judgment belongs to the team and, later, to the decision-maker in consultation with the public.

8.2.4 Identify Implementation Problems

After analyzing the environmental and socioeconomic effects of each alternative, it should also be possible to point out major problems that could prevent their implementation. The principal concerns for the social assessor are likely to be in the institutional and legal areas.

For example, major problems could occur if any of the alternatives require creation of institutions which currently do not exist, if they require changes in existing laws or jurisdictional boundaries, if local taxing districts do not have sufficient authority to cover the probable demands for services and facilities, or if any of the alternatives conflict with major cultural practices.

8.2.5 Assess the Alternatives' Public Acceptability

Along with the public involvement staff and the decision-makers, the social assessor is responsible for identifing whether any of the alternatives are particularly likely to gain broad public support or if they are likely to generate continued opposition. Frequently the information available at this stage is limited, so this assessment should not be considered definite and is most useful in identifying serious and long-standing opposition.

9. Description of the Existing Environment

9. Description of the Existing Environment

9.1 Introduction

This chapter presents a method for identifying and describing the characteristics of the existing environment. Following recent NEPA guidelines, this chapter focuses on developing a description of the existing environment which leads to and supports the assessment of the proposed action's social effects. The purpose of examining and describing the existing environment is analytic; the information obtained should be pertinent to the analysis and interpretation of the likely social consequences of the proposed action. Consequently, the information obtained and presented about the existing environment should be tailored to the particular assessment task -- it should fit the purpose of the assessment and the characteristics of the proposed action. The discussion in this chapter is quite detailed in order to provide guidance to those conducting detailed and comprehensive assessments of major projects. If this level of detail is too great for the type of assessment you are conducting, it is advised that you read the detailed discussion but proceed with your work on topics and at a level of aggregation appropriate to your particular task. Be wary of wasting effort by trying to address the problem in too much detail -- it will be frustrating and will lead to the development of a document that is less than optimal for its purpose.

It should be noted that there is a heavy emphasis on economic, demographic, and facilities/services characteristics in this analysis. The reason for this is that in most cases where the guide would be used, the actions being assessed are economic or resource management projects that cause social effects primarily by changing the economic, demographic, and facilities/services characteristics of communities. This becomes quite clear in the scoping process described in Chapter 7. Four of the six action-related changes that have the potential to cause social effects are economic, demographic, or resource factors (people, jobs, income, resources). Even the remaining two factors (organizational and

regulatory contexts; public health and safety) have strong economic aspects. Consequently, to determine the social consequences of most of the proposed actions likely to be assessed with this guide, it is important to understand how these economic, demographic, and facilities/services effects occur and how they cause social consequences, even though you probably will not be responsible for forecasting these effects themselves.

This chapter is organized into three major components. The first explains how to determine which characteristics of the existing environment need to be understood in order to provide a basis for forecasting and interpreting social impacts. It involves a detailed discussion of the social organization model and how it can be used for this purpose. The second component describes how the necessary information can be obtained, and the third provides guidance on how to present this information and document the process.

9.2 How to Determine the Important Characteristics of the Existing Environment: Use of the Social Organization Model

9.2.1 The Purpose of the Description of the Existing Environment

Determining what is important to know about the existing environment is an analytic process. It is critical to the entire assessment effort, since it determines what information will be available for analyzing how the inputs from the proposed action will result in social impacts.

In order to find out what aspects of the existing environment are important to the particular assessment you are conducting, you need to understand (1) what inputs from the proposed action could cause social effects and how those effects would occur and (2) the level of detail necessary for the type of assessment you are conducting. As discussed in Chapter 6, the type and purpose of the assessment effort should have been clarified through consideration of the overall assessment process and discussions with your supervisor. During the scoping process described in Chapter 7, estimates of the potential changes caused directly by the proposed action were made, and some preliminary information about

the existing and baseline characteristics of the study area communities was obtained. As a result of this process, the communities or areas requiring most attention were identified, and the major sources of social impact were clarified. This information should be reviewed, and the estimates of potential action-related changes (or inputs) should be updated if more information has become available.

The next step is to understand the social change process -- how the existing environment changes as inputs to the system are altered. To facilitate this understanding, the social organization model, which organizes information about the existing environment into components -- community resources, social organization processes, and indicators of well-being -- is described in detail (see Figure 9-1), with a discussion of how the components change and interact as the types of inputs that could result from a proposed action are introduced.

9.2.2 The Social Organization Model: Community Resources

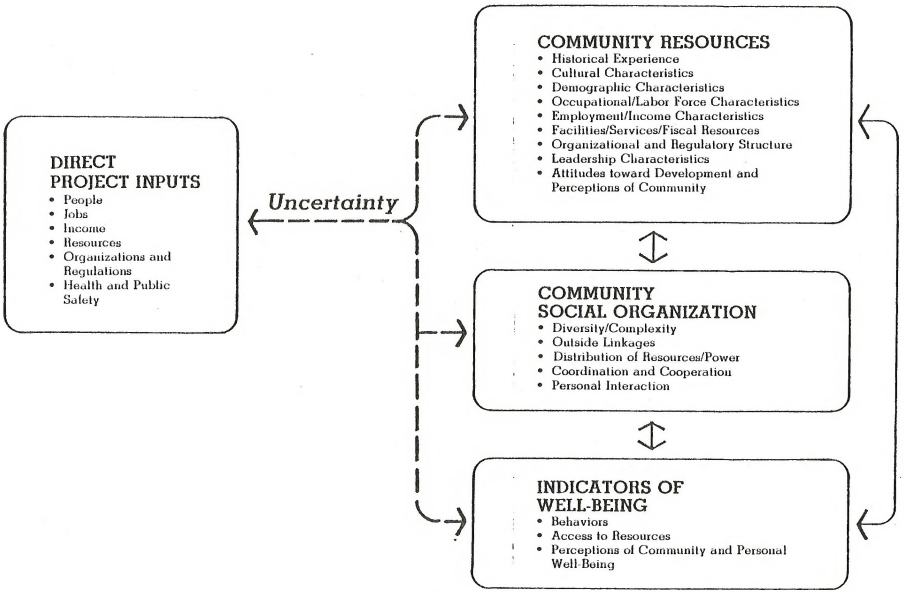
The purpose of analyzing community resources is twofold. The first is to assess the community's ability and willingness to respond to the demands created by the direct project inputs. The second is to determine how the community's resource base will change as a result of the proposed action. For some types of resource management decisions, project inputs will have little or no effect on community resources. In these cases, the lack of effect needs to be documented, but only limited attention needs to be given to description of existing community resources.

The adaptive capacity of a community depends not only on the availability of material resources (e.g., housing, classrooms, health care facilities, money, etc.), but also on a composite of relatively intangible things such as previous experience with development, attitudes toward development and growth, and attitudes toward the particular project.

The major community resources that can be considered include the following:

FIGURE 9-1

The Social Organization Model



1) Previous experience with development

2) Cultural characteristics, particularly the presence of unique populations such as American Indians, land grant Hispanics, or communities with a strong religious base, such as Mennonites or Mormans

3) Population size and demographic structure

4) Occupational and labor force characteristics, paying particular attention to the dominance of particular livelihoods and/or technologies

5) Employment and income characteristics of the community

6) Existing (or planned) facilities and services and fiscal resources

7) Institutions and organizations, and the regulatory structure of the community

8) Leadership characteristics of the communities

9) Residents' attitudes toward development

9.2.2.1 HISTORICAL EXPERIENCE

Variables

An understanding of the community's history is needed to understand the context in which community residents will perceive a proposed action. The historical review should focus on determining social attitudes, understanding the social structure of the community, and predicting how the community may respond to project inputs. Of particular importance is past experience with (1) similar projects, (2) other, related types of development, or (3) community emergencies and disasters. A community that has experienced previous projects or other situations that required coordinated response may be far more effective in adapting to change. On the other hand, if the previous experience was bad, it may signal strong resistance and fear of change. In addition, community residents, having experienced growth, may have developed strong attitudes regarding these issues.

To save time, the review of the community's history should also be used to gather a variety of information about the community that will be used in other areas. Particular attention should be paid to information about:

-- Previous experience with development
-- Current or recent political controversy regarding development
-- Major actors in previous development issues
-- Names of influential persons, groups, or families
-- Important events (conflicts or achievements) in the community
-- Distinctive characteristics of the community that are strongly valued locally
-- Prominent stakeholder groups with a history in the area
-- Recurrent and unresolved problems that continue to plague the community

Data Sources

Local histories are often available. However, these histories must be viewed with caution; although they help to identify local issues, care should be taken to corroborate the important facts. However, the library -- and in particular, local librarians -- are major sources of information about local history. Other sources of information include local newspapers, local historical societies, longtime residents, and archives at state libraries or universities.

9.2.2.2 CULTURAL CHARACTERISTICS

Variables

Detailed analysis of cultural characteristics is likely to be significant only when there are unique racial, ethnic, religious, or occupational characteristics in a community. Careful documentation of the cultural characteristics of an average rural community in the West is usually not warranted. If a community is not culturally unique, no detailed analysis should be done on this variable. Examples of unique cultural characteristics that would be important include the following:

1) Large American Indian populations
2) Communities in which a single religious group was responsible for the establishment of the town
3) Hispanic populations from Spanish land grants, such as are found in New Mexico

4) Communities in which a unique trade or occupational organization has been dominant

The kinds of questions which need to be considered are the following:

1) Will the unique characteristics of the group or community cause them to be affected by or react to social change differently than a more typical group or community would?
2) What are the unique attitudes of the group or community toward development?
3) Will the proposed action alter the unique cultural characteristics of the community?

Data Sources

Because they are unique, these cultures have generally received substantial research attention. There are numerous documents in university, state, and local libraries that discuss the culture of most of the unique groups likely to be encountered. Interviews with community residents can provide another primary source of information.

9.2.2.3 POPULATION SIZE AND DEMOGRAPHIC CHARACTERISTICS

Variables

The basic demographic characteristics of the study area communities will usually be described by the economic/demographic analyst, with the social assessor interpreting their meaning. Many actions do not cause large enough changes in population to result in a large change in a local community's demographic characteristics, aside from an increase in total numbers. The assessor's work should focus only on those demographic factors that will change as a result of the proposed action. Consequently, there is no value in an exhaustive demographic analysis if all that is shown is that the project will have little impact and if the demographic factors do not discriminate between alternatives. Usually the scoping process described in Chapter 7 will provide sufficient information about the proposed action to indicate whether or not any demographic characteristics are likely to be significant. Examples of population size and demographic characteristics that could be important are:

1) The total population size of the community
2) Recent trends in population size
3) Age/sex distribution of residents
4) Degree of ethnic or racial homogeneity

The kinds of questions that will determine which of these characteristics are important include the following:

1) Could the proposed action cause a substantial change in the total population of any community?
2) Could the proposed action reverse the recent population trends? For example, would communities with little experience with population change be faced with major changes?
3) Could the population change due to the proposed action result in changes in the overall age/sex or ethnic distribution of any community, thereby affecting social relationships or service demands?

Data Sources

Typically, data to document preproject population size and demographic characteristics are provided by the economic/ demographic analyst or are available from secondary sources such as the U.S. Census, although it may be difficult to obtain intercensal data at the community level. Interviews with local service agency personnel may be helpful in assessing the importance of any demographic changes in terms of facilities and services.

9.2.2.4 OCCUPATIONAL AND LABOR FORCE CHARACTERISTICS

Variables

The labor force and occupational characteristics of the local communities will also usually be described by the economic/ demographic analyst. Although the economic/demographic analysis focuses more on industrial sector employment characteristics (see below) than on occupational characteristics, sufficient information is generally provided to identify the important occupational and labor force characteristics and trends. As with population size and demographic characteristics,

many actions do not cause substantial change in occupational, labor force, or livelihood characteristics. If the occupational or labor force changes which would be caused by the proposed action are small, this characteristic is likely to be unimportant in the assessment. However, perceived threats to established livelihoods can occur even when the forecast changes are relatively slight, so particular attention should be paid to this issue. Examples of occupational and labor force characteristics that could be important include the following:

1) The presence of high or low unemployment rates, which indicate a need for additional jobs or the lack of available labor.

2) The occupational distribution of residents. Especially notable are heavy concentrations in particular occupational or livelihood categories, such as forestry or farming, or a high degree of diversity.

3) The labor force participation characteristics for particular population groups, such as women, youth, or ethnic groups. These data demonstrate existing distributional processes.

Questions that would indicate which of these characteristics are important include the following:

1) Could the proposed action provide needed jobs to an economically depressed area, or could it aggravate competition for scarce labor?

2) How many local residents would be qualified and able to obtain employment from the proposed action? Who would those residents be?

3) Would the proposed action affect an important livelihood in a way that would threaten (or be perceived as threatening) its viability?

4) Could the proposed action cause sufficient change in the area's occupational/livelihood characteristics to affect local lifestyles?

5) Could the proposed action increase the labor force participation rate of particular groups, such as women, to an extent that would affect demand for services, such as child care, and interpersonal relationships?

Data Sources

Data to document preproject labor force and unemployment characteristics are usually provided by the economic/ demographic analyst.

Data on occupational characteristics are available in the U.S. Census and can be abstracted, to some extent, from the employment characteristics published annually by the U.S. Department of Commerce, Bureau of Economic Analysis. The economist will usually have these documents. Other sources of data about dominant occupational groups and socially important livelihoods can be obtained through interviews with area residents or from secondary sources describing the area.

9.2.2.5 EMPLOYMENT AND INCOME CHARACTERISTICS

Variables

From a social perspective, changes in employment characteristics (as they are usually presented) are of less interest than an area's occupational characteristics and the characteristics of the businesses located in it. However, changes in employment characteristics can be used as an indication of changes in the economic base of the community and the area's economic diversity. These data have the advantage of being available on an annual basis. In addition, they frequently are the variable the economist uses in the baseline and with-action forecasts. Consequently, employment characteristics will often be compiled and analyzed by the economic/demographic analyst and therefore be readily available. Changes in income are more directly applicable to the social assessment, since changes in income level and income distribution are important indicators of change in the material well-being of the community. Examples of employment and income characteristics which could be important are the following:

1) Per capita income for the area, especially if it is substantially lower or higher than the state or regional average
2) Wage rates for workers in the various industrial sectors
3) Estimates of income distribution, especially the annual income of families
4) Distribution of employment by industrial sector

Examples of questions which would determine whether these characteristics are important include:

1) Do the income or wage distribution data indicate unusually wide disparities in income compared to state or national averages?

2) Do the sectoral wage rates indicate either wide disparities in income or that some sectors will have difficulty competing for workers?

3) Do the employment data indicate large numbers of workers in the sector that would be affected by the proposed action, or do they indicate that the proposed action could substantially alter the area's employment and industrial characteristics by introducing a new type of employment or industry?

4) Do local residents oppose the presence of particular types of jobs (and/or workers) because of their perceived social characteristics?

Data Sources

Typically, data on these variables are provided by the economic/demographic analyst. Annual capita and per worker wage income and employment by industrial sector data are available from the U.S. Department of Commerce, Bureau of Economic Analysis. State employment security divisions usually compile this type of data also. Attitude information must be obtained from local or regional sources. For most analyses, the economist will have these documents and will be preparing this type of description for the study area.

9.2.2.6 FACILITIES/SERVICES AND FISCAL RESOURCES

Variables

Changes in population will affect the demand for facilities and services. Changes in resources, economic activity, or income can affect the supply of services and facilities. The cost, quality, and availability of public and private services has an important influence on the distribution of effects and on perceptions of well-being and the community. In particular, changes which result in increased cost and/or decreased availability and quality are important not only because they affect material well-being, but because they can affect interpersonal relationships, political organization, and attitudes. Therefore,

although the analysis of facilities/services and fiscal effects is usually done by the economic/demographic, facilities/services, or community affairs analysts, this information is very important to the social assessment. It is often the responsibility of the social assessment to identify organizational, leadership, or attitudinal factors that would affect the community's ability to respond in an optimal way.

If demand exceeds supply, the price of a service may be driven up, and/or a deterioration in service quality or availability may occur. If demand falls below supply, per capita costs can increase or service providers can go out of business. For public services, increased supply of facilities or services requires increased revenues. If demand increases faster than the tax base, then either the supply of facilities/services will be inadequate or the tax rate will increase. If the tax base increases faster than demand, additional services can either be provided or tax rates reduced.

In some cases, the time required to provide an additional service is so long that the service cannot be available when it is needed, resulting in periods of shortages. In other cases, the short duration of the demand or the uncertainty of the demand makes it uneconomical to expand to meet it. This also results in periods of shortages. In some instances, local suppliers do not have the capacity or the financing to meet the demand, resulting in the introduction of outsiders.

Examples of facilities, services, and tax base characteristics that could be important include the following:

1) Current service levels and organizational and budgetary characteristics of public services such as
 -- general government administration
 -- schools
 -- health care
 -- water, sewer, and solid waste
 -- social services (welfare, mental health)
 -- law enforcement
 -- health
 -- recreation

2) Current service levels and response capabilities of private sector services, such as
 -- housing
 -- medical care
 -- mental health
 -- household services (plumbers, electricians, telephone installation/repair, day care)

Questions which would determine whether these characteristics are important include the following:

1) Are there current problems with service availability that indicate resource constraints or the community's inability to cooperate or obtain funds?

2) Are there current problems with service availability that indicate inadequate demand to support the service?

3) Would the increased demands created by the proposed action result in inadequate service or increased costs?

4) Would increased demands and/or revenues from the proposed action result in increased availability of facilities or services?

5) Would the increased demands created by the proposed action require major changes in the organization of service provision? Would response entail introduction of outside businesses or agencies? Are the service providers prepared to implement these changes? Is financing available?

6) Would the changes in facility and service availability and cost result in special hardships or benefits for any particular groups? For example, people on fixed incomes might suffer greatly if food costs were inflated by the proposed action. People owning real estate would benefit from rising real estate prices, while newcomers and young people establishing new households would suffer accordingly.

7) Would the action-related changes in the population's occupational and age/sex composition cause changes in service demand that would affect the supply of services or the ability of service providers to respond? For example, an influx of young married couples to a community that had previously experienced outmigration of this cohort could require the community's medical focus to change from care for chronic ailments to industrial accidents and obstetrics/pediatrics.

8) Are there potential combinations of attitudes or cultural orientation, service availability or costs, and changes in income levels that will aggravate the distributional effects and result in special hardships for a particular group? Be alert for differential use of facilities and services. Longtime residents are often less affected by inflation in the cost of housing and durable goods because they generally have little demand for these facilities -- they already own them -- but they are

strongly affected by increased property tax rates. From the most affected to the least, the economic effects of rapid growth (not general inflation) affects (1) poorly-paid newcomers, (2) poorly-paid, young longtime resident families, (3) well-paid newcomers, (4) fixed income residents, and (5) other longtime residents. Property tax increases often have greatest effect on fixed income residents and other longtime residents.

Data Sources

The usual sources of information about facilities, services, and the tax base are the service providers themselves. Keep in mind their political and economic stake in the information they provide. Agencies can provide not only specific estimates of impact, but also guidance on how service demands are estimated. Because multiple levels of government are often involved, it is often possible to get some measure of the appropriateness of your estimates and methodology by discussing the problem with several agencies involved in providing similar services. In general, this information will be gathered and analyzed by the facilities/services analyst and/or the economic/demographic analyst.

9.2.2.7 INSTITUTIONS, ORGANIZATIONS, AND THE REGULATORY STRUCTURE

Variables

The institutions, organizations, and regulatory structure of a community are an expression of the important social processes within it. If an organization has been formed, it can be assumed that it represents a force or activity in the community, so examining these institutions and organizations provides information about the important social processes operating in the community. Institutions, organizations, and regulations are also important in the implementation of projects and in the community's response to the project's social effects.

As indicated in earlier chapters, one of the significant factors in a community's ability to cope with development is whether the institutions and regulations necessary to control and monitor change are in

existence and persons with the necessary expertise are present. Institutions and regulations may be formal, such as a planning department with zoning controls and building permits, or they may be informal, such as a banker who will not fund projects that are unacceptable to the business establishment. The institutions which do exist may be limited legally and unable to fully cope with change. For example, taxing authorities may be limited in the kind and amount of taxation; water management may be limited to surface water and not include groundwater; and tax monies may go to the county while the service demand is within the city. Therefore, the analysis of the existing environment and the characteristics of the proposed action should examine the institutional, organizational, and regulatory context to identify whether there are impediments either to the alternatives being considered or to the community's ability to manage the social change introduced by each alternative.

Among the institutions, organizations, and regulations that could be important are those involved in the following:

1) Planning policy. Institutions having jurisdiction or an interest in patterns of development or resource use that would result from implementing these alternatives.

2) Financing authority. Institutions having the legal authority or economic capability to raise taxes, sell bonds, or otherwise finance facilities or services connected with an alternative.

3) Land or resource acquisition. Institutions that are concerned with the procedures necessary to acquire land, water rights, etc., necessary for implementation.

4) Monitoring and surveillance. Institutions involved in enforcement, inspection, maintenance of standards, and permitting.

5) Coordination. Institutions involved in coordinating or managing other institutions involved in any of the functions above.

Questions that will help determine which of these characteristics are important include the following:

1) Is there evidence of conflict between the institutions or organizations which would be required to respond to the changes introduced by the proposed action? Would this conflict limit

their effectiveness? Is it indicative of a larger conflict in the community as a whole that will affect response to the proposed action?

2) Do the necessary institutions, organizations, and regulations exist to respond to the changes that could be introduced by the proposed action? For example, management of water rights, resolution of conflicts regarding land use, and joint powers agreements to share revenues and service provision. Are they adequately funded and staffed? Or are there gaps where the absense of such institutions or regulations would cause problems, but where their provision would represent a substantial change from existing conditions?

3) Are the existing institutions and regulatory mechanisms appropriate for the increased population and other changes that would result from the proposed action, or would substantial change be required or introduced by the proposed action? For example, the informal controls which exist in many small towns are workable only as long as a large proportion of the population know each other.

4) Would the proposed action directly change an existing regulatory policy, or would it impose an entirely new regulation on the community that would affect or be perceived to affect local control or access to resources?

Data Sources

The primary source of information about institutions and organizations would be interviews with agencies and officers of organizations. Publications describing the activities and authorities of the various institutions are generally not available. Much of this information will be collected by the facilities/services analyst.

9.2.2.8 LEADERSHIP

Variables

If the community is going to be called upon to respond to the changes introduced by this proposed action, the leadership characteristics of the affected communities can be an extremely important determinant of the nature and effectiveness of that response. Just as economists estimate whether taxing districts have sufficient revenues to purchase needed goods and services, a social assessor needs to determine whether the affected communities have the political power to take the

actions that will enhance the benefits and minimize the problems that could result.

"Political power" is used here to incorporate both the political authority and the political mandate or will of local officials and leaders. The question of authority is simply whether or not local officials have the legal authority they need, via taxing, siting, or land use laws, to impose requirements on project sponsors, control growth, and obtain revenues. The question of mandate or will is more complex. The first question is whether sufficient consensus exists or can be created in the community to provide local officials with a political mandate to establish mechanisms for controlling the kinds of changes introduced by the proposed action. This may require a change in philosophy. In the rural West, government control of private land use has often been considered a grave threat to personal liberty. There may be conflict within the community which prevents its leadership from acting in a unified manner. Not infrequently, local issues are used as a platform from which one element in the community challenges another. This may result in division within the community that seriously limits the community's power to take action on any issues. The failure of local officials to exercise the power they have is a clear indication that the problem is not one of authority, but of mandate or will to exercise these powers.

The characteristics of the existing leadership are particularly important in determining whether or not the changes caused by the proposed action are likely to result in a change of leadership or the use of political power within the community. One of the frequent fears of longtime residents is that a large influx of newcomers will result in longtime residents losing political control to newcomers who may not share their commitment to the community. The evidence suggests that whether or not this happens depends to a great extent on how the existing leadership responds. If the existing leadership does not respond or responds ineffectively, a change is likely to occur, with either different longtime residents or newcomers acquiring power. If the existing leadership responds effectively and is perceived as using its authority

responsibly, it is likely to maintain its position, but its membership will be expanded to share power with newcomers. One frequent pattern is for longtime residents to retain informal power and elected policy positions, but to incorporate newcomers as administrators, investing them with considerable formal power.

Leadership response affects not only the material resources and organization of the community, it also affects residents' attitudes about the community and the effects of the proposed action. Longtime residents who are part of a political leadership group that responds effectively and shares its power with newcomers generally do not report feeling a loss of personal position or familiarity in the community. However, longtime residents who are not part of the political leadership frequently, and sometimes bitterly, report that they have lost their access to the political structure of the community and have a reduced sense of familiarity in the community.

Newcomers who do not belong to the decision-making structure are very much affected by community residents' attitudes toward them and by the decision-makers' ability and willingness to create a positive environment for them. This is particularly important because recent residents rarely have any political power, and decisions affecting them are usually made by others. The well-being of the community appears to be best served if accommodation, acceptance, and fairness are used in dealing with newcomers. Depending upon the magnitude of the action-related change in population and resources, this usually requires that the leadership establish mechanisms to ensure that the newcomers pay their own way, so that longtime residents do not feel overburdened and resentful.

Changes in leadership are somewhat more likely to occur when the newcomers to the community have skills, interest, and experience in voluntary associations, management, and community organizations, and when they expect to be in the community for some time. However, evidence from previously impacted communities shows that newcomers (especially newcomers associated with large-scale projects) tend to be sensitive to

fears of a "takeover" and participate in ways which support or supplement the existing leadership, rather than trying to "grab" public positions or political power.

A potential source of conflict between long-term residents and newcomers exists if an important determinant of political power and leadership has traditionally been membership in a distinctive ethnic or religious group, such as membership in a tribe or in a particular church. One of the key factors determining whether or not this conflict will occur is the degree of similarity between the demographic characteristics of the newcomers and those of the existing population. If their characteristics are greatly different, the chance of conflict increases.

Another political leadership issue that is raised by the introduction of new sources of income, power, and resources is the potential conflict of interest between community leaders' official roles and their personal economic self-interest. Since holding a position of political leadership in a small community is often associated with status and wealth, rapid development may present unique opportunities which create conflicts of interest that previously did not exist. It can be difficult for the community and the leadership to establish a method for dealing with this conflict and to simultaneously develop a coherent program for handling growth and for instituting new and complex administrative programs.

Examples of leadership characteristics which could be important to describe include the following:

1) The extent to which local leaders are knowledgeable about the range of their responsibilities and authority and whether they have in the recent past demonstrated an ability to implement this authority. (Whether the problem of animal control has been solved is a good indicator of this.)

2) The stability of leadership in the community/county over the last several years, and in areas with substantial populations of newcomers, whether newcomers are included among community leadership.

3) Evidence that there has been cooperation, conflict, or little interaction between various officials and community leaders and between the informal and formal leaders in recent years.

4) The experience of current leaders with the types of changes likely to be caused by the proposed action and the way they responded previously.

5) If newcomers have entered the community, it is important to know if they were well-received and if the leadership made an effort to make them feel welcome and to integrate them into the community.

6) The association of leadership with ethnicity or religion. For example, is there a balance of power between two or more groups or does one group dominate the leadership positions?

7) The history of community leadership style. Does the community/county have a history of active, aggressive leadership which has taken the initiative to resolve local issues or a history of passive, indecisive, or quarrelsome leadership? Are areas of the county neglected by the leaders or is there a serious attempt to attend to the needs of the entire community with some equity?

8) The extent to which current leaders have the support and confidence of the community.

9) The extent to which local leaders control opportunities for accommodating change (e.g., do they have a monopoly on scarce resources, or do they control zoning regulations that have this effect?)

Questions to ask to determine the applicability of these characteristics include the following:

1) What types of changes would be caused by the proposed action that would require leadership response? How clear will the leadership decisions be?

2) Has the current leadership had experience with the types of problems likly to be caused by the proposed action? Were the problems handled adequately and easily?

3) Have the current leaders thought through the consequences of the proposed action? Have they formulated an idea of community goals and an approach to the problems?

4) Are there other activities occurring at the same time as the proposed action that would affect the leaders' ability to deal with action-related changes?

5) Would the proposed action introduce people with characteristics that would affect the current leadership structure and balance of power?

6) Do current leaders each have sufficient authority to deal with the changes introduced by the proposed action?

7) Do current leaders perceive that the proposed action represents a threat to their leadership or to their ability to perform adequately?

Data Sources:

The legal authority and responsibilities of local officials can be determined by reviewing documents summarizing local laws and powers and by interviewing local officials. The facilities/services analyst will frequently have much of this information, although for a different purpose. Local officials often can specify the areas where additional powers are needed, but in some cases, they may be unaware of the authority they have if they have not had occasion to use it. Local newspapers and interviews with community residents and leaders can provide information about the type of issues that have occurred in the past, how the leadership responded, and whether the administrative structure to deal with such issues has been established.

Assessment of the existing political mandate or will can be made based on secondary sources (newspapers and reports), observations, and interviews. Discussion of recent political campaigns or controversies in which growth or development issues played a role may be particularly helpful in understanding the political forces at work in the community. Local officials can describe the mandate they personally perceive, although this will vary from official to official and may be somewhat idealized.

One of the difficulties with consideration of the process of political organization is that it is sometimes easier to obtain the information than it is to report it in a way that is not viewed as meddling or provocative. As a rule, the social assessor should never comment on the personal ability of local officials or appear in any way to be telling the local community how it should be organized politically.

On the other hand, since the response of local leadership has been shown to be one of the most important factors in determining social effects, the social assessor does have the obligation to indicate if it does not appear that the response will be adequate, either because of (1) a lack of legal authority or a lack of mandate or will due to a stand-off between conflicting interests, or (2) a fragmented community with no mechanism to reach concensus or allocate authority. Because there can be local reactions to such a statement, the social assessor must be confident of the findings, present the findings in an objective and professional manner, and be satisfied that the consequences of the political leadership problems are sufficiently adverse to justify the criticism that may result from having an outside agency identify these problems. It may be appropriate to present this information in a form other than the official assessment document, such as a policy paper, memorandum, or briefing. Further discussion of the presentation or the description of the existing environment is presented in Section 9.4.

9.2.2.9 ATTITUDES TOWARD DEVELOPMENT AND THE PROPOSED ACTIONS: PERCEPTIONS OF COMMUNITY AND PERSONAL WELL-BEING

Variables

The attitudes community residents have toward development and the specific actions being proposed, as well as their perceptions of community and personal well-being, are important determinants of the social effects of a proposed action. Attitudes not only influence actions, they also influence perceptions and the interpretation of actual events. Much of the information about attitudes and perceptions will be available only from secondary sources (attitudes have generally been well-researched) or from interviews or surveys with community residents about current attitudes and perceptions. This information is generally used as a basis for forecasting the response longtime residents and newcomers will make to the proposed action and their evaluation of the changes caused by it. It is emphasized that information about attitudes and perceptions should not be gathered only from community leaders, though their attitudes are certainly important, but must also be obtained from

members of the various stakeholder groups as well as the general population of the community.

The type of information that is needed about the residents' attitudes toward development and the proposed action includes the following:

1) Position regarding development or the proposed action (favor, oppose)
2) Reasons for this position
3) Anticipated effects from development or the proposed action and evaluation of those effects

Obtaining this information and comparing the patterns of response given by members the different stakeholder groups to those of the general population will clarify how well the stakeholder groups reflect community-wide attitudes, how diverse the attitudes of the stakeholder groups are, and what kinds of people constitute the stakeholder groups.

Care should be taken not to equate anticipation with impacts. Attitudes indicate how residents feel about the proposed action and what they think will happen; they can influence what will happen, but they often do not accurately reflect what actually will happen. Forecasting what actually is likely to happen is the purpose of the assessment. Information about attitudes is part of the description of the characteristics of the community that can be used to forecast the manner in which the direct project inputs will interact with the community and to interpret the probable meaning of the resulting changes.

Perceptions of the community and well-being (or community satisfaction) are quite a bit different from attitudes towards development. The interest here is (1) to discover how residents perceive their community, (2) to discover how they think it will change with the proposed project, and (3) to obtain community perceptions about some objective indicators (these are discussed in Section 9.2.2.3). All of this information is essential to understand how residents relate to their community, how they like it, and how they think it will change. Having

this information will enable you to evaluate the meaning of the community changes that are forecast to occur.

Different people have different perceptions of their community. While some may feel it is the best place in the world to live, others may think it is too small with nothing to do. Likewise, there are some who will like knowing everyone in town and being known, while some may feel uncomfortable with this level of familiarity. Knowledge of how people perceive and define their community allows valid judgments to be made of how the effects of the proposed project will be interpreted and what meaning they will have.

The following information about attitudes and perceptions may need consideration:

1) Stakeholder groups will usually have definite positions with respect to development and its effects on the community. These groups may or may not be formally organized, but their attitudes are likely to be important in forecasting response. The size, membership characteristics, and attitudes of the stakeholder groups toward development and the proposed action could therefore be important.

2) The attitudes of the various stakeholder groups may be generally similar, or they may be seriously at odds. Information about the attitudes of each group and how it compares with those of the leaders and general population may be important for forecasting community response and distribution of effects and for determining how different groups will evaluate the effects.

3) Residents, leaders, and stakeholder groups may have misperceptions about the proposed action and the likely effects that influence their attitudes (and potentially their response. Information about how residents understand the proposed action, the likely project inputs, and their effects can therefore be useful in forecasting and evaluation.

Questions which would help indicate what information is necessary and in what detail it should be gathered include the following:

1) How large and important are the effects of the project likely to be? If they are anticipated to be large, more attention to attitudes is warranted, and information may be needed in more detail to properly assess and evaluate the effects on different groups.

2) Does the proposed action involve a significant policy decision? This often creates a situation where public opinion is particularly important to the decision-maker, and it is likely to warrant collecting more detailed information about the attitudes of the general population as well as stakeholder groups.

3) Has there been controversy over the proposed action? Controversy generally indicates not only intense feeling but disagreement among groups. In situations where there has been controversy, it is often unclear how the general public feels about the proposed action. In some cases this may indicate a need for detailed information.

In addition to community satisfaction, information about how residents think their community will change with the proposed project can be useful. This requires more focused questions than those addressing community satisfaction, and the answers may be an entirely different dimension. For example, a person may state that what they like about the community is its "small-town atmosphere," but say that the biggest change with the proposed project will be "business will increase." This illustration points out that the question on satisfaction deals with the present situation while the question on changes deals with expected futures. It is not the assessor's job to "correct" people if they anticipate a community change that will not likely occur. In the data collection process it is only necessary to get the necessary information. Later, if at all, is the time to make judgments on the accuracy of the anticipations.

As will be discussed in Section 9.2.3, the assessor will need to collect and analyze data on some indicators of community well-being. The interviews conducted to obtain the community satisfaction and anticipated change information can be used to get some community response to compare with these projections. Large discrepancies between residents' perceptions of the social indicators and what is projected need to be accounted for and explained. The assessor may want to ask residents why they feel as they do about these questions. At the same time the assessor may want to check his or her projections against the experience of other similar communities and perhaps to examine what underlying assumptions have been made and the projection technique.

In gathering and analyzing all this information, the assessor should be looking for patterns in the responses according to age, sex, occupation, length of residence, etc. To the extent possible, the assessor should be able to explain the differences that do appear. All of this information will enable the assessor to discuss what the changes due to the proposed project will mean to the community residents: how it will affect their daily lives, their sense of and attachment to the community. The assessor will be able to talk about the human meaning of social change.

Some issues that need to be taken into consideration are the following:

1) Community satisfaction is typically very important to people in rural communities. The community is very important to its residents.

2) Why people like their communities and what they like about them are different in rural and urban areas.

3) Service availability is usually fairly low in rural areas, and residents don't demand a lot of service.

4) Residents may have preconceived ideas about changes in rates of behavior such as crime, divorce, drug abuse, etc., because of the project. The perception may be accurate; overestimates or underestimates are likely to occur.

Questions which would help indicate what information is necessary and in what detail it should be gathered include the following:

1) What do community residents like about their community? What do they like about the general area? Why? What don't they like about the community? What don't they like about the general area? Why?

2) Are residents satisfied with community services? What services would they like to see in addition to what is available? Do they use the community services? Which ones?

3) What do residents think will happen to the community if the development occurs? What do they feel will be the most important changes? Why?

4) What kinds of changes in behavior (crime, divorce, etc.) do community residents anticipate? Why?

5) What is the pattern of response to all these questions? Do answers differ by age, sex, occupation, length of residence? How can the pattern be explained?

Data Sources

The appraisal of local attitudes toward development and perceptions of the community and well-being can be made as part of the interviews being conducted to investigate other attitudes, community resources, and social processes. In addition, any records of public response -- surface owner consultations, scoping meetings, correspondence files, public meetings, hearings, and comments -- as well as newspaper accounts can be reviewed for attitudes about the proposed or similar actions.

However, it is important to be cautious in utilizing this type of information. Any claim to be representative of the attitudes of the community requires that the interviewing and data sources meet the standards of probability sampling techniques described in Chapter 14. In addition, multiple sources of data and methods should be used as often as possible. The primary data collected from field interviews should be compared to and used in conjunction with any other available studies of the area.

Ordinarily, a structured survey or other quantitative instrument is not necessary to obtain sufficient information about community attitudes and perceptions for the assessment, if interest is limited to ascertaining the major, dominant attitudes and perceptions in the community. However, the limitations of this approach need to be recognized. There are occasions when a formal survey approach is warranted. These generally occur with (1) major projects, where the anticipated effects will be large; (2) with actions involving significant policy decisions, where public opinion is particularly important; (3) where controversy has been intense and it is not clear how the "silent" majority feels; or (4) where representativeness of attitudes and perceptions is important to the assessment itself. Chapter 14 discusses the use of structured sample surveys. When a quantitative approach is taken, it is important that a good sampling design and questionnaire be used, that an adequate pretest be done, and that reliability and validity measures of the items be completed before the results are released.

9.2.3 The Social Organization Model: Social Organization, Structures, and Processes

This component of the social organization model contains much of what is "social" about a community. Change in any social system or community can only be understood by considering all of the major elements that compose the system; that is, the "inputs" into the community (project inputs), the resources available to the community (community resources), and the "outputs" of the system (the well-being of its members). The way in which these elements are combined and related is largely determined by the social structure and processes which have evolved over time and are particular to each system or community. The social organization of a community is therefore determined by other elements in the social system while it simultaneously influences the characteristics of these other elements.

Social organization is difficult to study because it is an abstraction. Since structures and processes are not directly measurable, they must be inferred from studying objective actions and from observing or listening to statements about people's motives and feelings. Thus, we cannot directly measure the process of coordination and cooperation in the community; the process must be inferred from the outcomes and patterns of behavior, from the statements of participants, and from the observation of analysts. Coordination and cooperation have very real effects, as does their absence. If, for example, a new jail is needed, but the coordination does not exist to get city and county officials to cooperate by sharing revenues and agreeing on a design, then it may be impossible to build the new jail no matter how much it is needed. It is this abstract quality of social behavior that makes the study of sociology and social change difficult for many people. But the social organization of a community is very real and has real and measurable effects.

People in potentially impacted communities know that their community is made up of more than objects and individuals and that it is the way people behave toward each other that determines the reality of a social group or community and establishes the meanings that actions have for the residents. People generally know this, but because of the abstract

nature of social process, many people cannot articulate clearly what changes they foresee or why they feel so strongly about having this aspect of their life change. When people in impacted communities talk about how development has changed their way of life, how their sense of community has been affected, and how their community is losing its small-town qualities, they are talking about their interpretation of changes in the social structures and processes that have evolved over time to organize their social or community life. The study of social organization is complex, constantly evolving, and never complete. That which can be learned by examining the existing environment can be very useful in forecasting how a proposed action will affect a community.

To understand a community before development (the existing environment), the major social structures and processes must be at least reasonably well understood. To forecast how development will change a community, an understanding of how existing social structures and processes will change is necessary. In this guide, five major social organizational processes are identified which can be used to study the social organization of a community:

1) Diversity/complexity
2) Outside linkages
3) Distribution of resources/power
4) Coordination and cooperation
5) Personal interaction

These processes were distilled from the literature review, research, and the experience of the authors. The categories of process utilized in this guide could be collapsed or expanded, but the processes described here have been found to provide a reasonable understanding of the social organization of most rural western communities and to identify the factors most useful in forecasting the social impacts of resource development decisions.

The five social organization processes are described below, along with methods for observing and measuring them. A discussion is also

provided to clarify how to determine whether these processes may be impacted by a proposed action and how they interact to produce social change.

9.2.3.1 DIVERSITY/COMPLEXITY

Increases in population, employment, and income usually increase the diversity and complexity of a community as both the number and types of activities and groups in the community expand. As a town grows, for example, the population may become large enough to support an additional clothing store, thus increasing the number of businesses in the community. But there is also likely to be an increase in complexity as well, because there may now be enough business to justify a sporting goods store (separate from the hardware store) or a liquor store (separate from the grocery store) and a diverse enough population to result in the establishment of new voluntary associations such as churches or clubs and to change residents' basic perceptions and definitions of the grouping of people within the community.

An increase in diversity and complexity can be both positive and negative. On one hand, a great deal of diversity in services, groups, and activities can mean that a community is able to satisfy the needs of a larger and more diverse population. But on the other hand, an increase in diversity is also likely to mean that the community has become more complex. Greater complexity can mean that a community becomes less personal in some areas. For some people, this may create a sense of impersonality. In a town that is structurally simple, people tend to feel they know everyone and everything in their town. As the town becomes more complex or diverse, they may feel that they no longer know their community and that they are no longer known by others.

Increases in diversity/complexity can be examined for the (1) economic, (2) political, and (3) social (including religious) sectors of the community, as discussed below.

Variables. The creation of new and different jobs in a community is likely to increase the purchasing power of the community, which in turn increases the number and kind of services provided locally. Existing stores, restaurants, and service establishments can expand, since they have increased their clientele.

Uncertainty about whether the increased purchasing power is temporary, as it would be during the construction phase of a large project, can limit this expansion. When the increase in purchasing power is expected to be temporary, business and financial people are less willing to invest in expansions or new businesses because the increased business may be too short-lived to return an adequate profit.

If small communities are far from additional markets, the expansion or specialization of business is likely to take place primarily in fields that serve the people or activities associated with the resource development. Under these circumstances, although the local economy may grow in size and the number and type of firms present may increase, the community frequently does not diversify its economic base. The local economy thus remains fragile in the sense that changes in the one major sector (the resourse base) affect the entire economy. This cycle has been repeated many times in communities relying heavily on a single type of energy or other resource-related business.

As a result, the increase in economic diversity in small isolated towns due to major industrial projects has been limited, even when major projects have been located nearby. This is particularly true if an aggressive regional center is within commuting distance. However, the degree of diversity and the ability of local business to compete with regional centers can be influenced by the presence of key resources (such as financing) and the actions of community leaders and business people toward providing an attractive business climate and developing a specific diversification policy. Also, changes in the number and type

of financial institutions can have an important effect on the ability of local businesspeople to obtain funds for expansion and on the economic control that can be exerted by area bankers.

Unless a community has previously experienced a project similar to the proposed action, implementation of the action is likely to increase the economic diversity of the community. At the same time, it will also increase the number of businesses or agencies with strong outside linkages. In very small, isolated communities or with very big projects, these changes can be substantial even though the total number of businesses remains small.

An increase in complexity and an associated major increase in outside linkages results when a community passes the threshold from serving only its local residents to being a "regional trade center," capturing business from a much larger geographic area. Conversely, a substantial business decline and reduction in diversity/complexity can result if a nearby town becomes a regional trade center, particularly if it takes over this role from the study community. Characteristics which could be useful in understanding the economic diversity/complexity of a community include the following:

1) The number of businesses located in the community and recent trends in this figure.
2) The market area of the community -- do community businesses serve primarily community residents, or do they serve residents of other communities as well?
3) The shopping patterns of local residents -- where do they go to do their shopping, in town or elsewhere?
4) The number of banks, supermarkets, and movie theaters in the towns.

Questions to ask to determine which of these characteristics would be useful to the assessment include the following:

1) Does the proposed action have the potential to substantially affect the number of businesses in a town?

2) Would the proposed action introduce a significant number of new types of businesses or result in the loss of existing types of business?

3) Would the proposed action substantially affect the market area of the town? Would it cause it to increase or decrease its trade area?

4) Would the shopping patterns of local residents be affected? Would there be major increases or decreases in local business or business in nearby towns?

5) Would the proposed action affect the number of financial institutions in the community? What about supermarkets and movie theaters?

Data sources. The data on the number and types of businesses can be obtained either from the project economist, from the U.S. Bureau of the Census County Business Patterns, from the yellow pages of phone books, or from the local Chamber of Commerce. Information about the market area and shopping patterns can be obtained from the economist or from local business people in the community. The boundaries do not need to be exact. The point is to understand generally where residents shop and what area local businesses serve. The analysis of potential effects of the proposed action (and changes in the baseline) should be obtainable from discussions with the economist.

Political Diversity/Complexity

Variables. Changes in employment and income, along with an influx of people, often create a need for additional and more professional governmental structure. These changes often require local government to deal with issues of regulating growth and development such as handling zoning problems, compliance with state or federal regulations, and regulation of subdivision developments. Since in small communites many administrative tasks are performed by officials who serve without pay, the increased complexity and related time demands often mean that the community must pay its officials and hire professional staff for the first time.

The town and county are also likely to be required to deal with many new actors, including other state and federal agencies, many of whom

have extensive ties outside the community or are actually located outside the community. Complying with the regulations of these other agencies, as well as enforcing new local regulations, often means that the decision process becomes more formalized and legalistic in nature. This occurs because decisions can no longer be based on personal knowledge of all the participants and because the sheer number of decisions becomes overwhelming if each is dealt with as a unique case. This increased formalization also results in an increase in the number and diversity of the linkages the community has with the outside.

Major indicators that these transitions have taken place are when a town hires a professional town administrator, when a planning department is established, when elected political positions become paid and/or full time, or where there begin to be formally recognized stresses and strains between town and county governments.

An increase in political complexity and diversity is often one of the changes felt most intensely by longtime residents in towns that are moving away from a relatively informal organization. An increase in political complexity and diversity very often means an increase in formality and the establishment of procedures for conducting business with the local government where previously informality and personal acquaintances prevailed. Since this increase is generally driven by an increase in population and is therefore accompanied by other substantial changes in local government activities -- such as the imposition of land use regulations, the expansion of facilities and services, or changes in the tax regulations -- and in interpersonal relationships, it is frequently perceived by longtime residents as confusing and as an indication that their role and importance in the community has diminished. On the positive side, the establishment of more formal procedures, if thoughtfully formulated and justly implemented, can serve to prevent favoritism and unfair treatment and can be an essential tool for controlling growth. Such rules can be particularly useful for local leaders when they are in a position that requires them to deny friends' requests.

In most cases, the transition from informal to formal, from simple to complex in local government is not accomplished without regret. There is generally a strong desire to retain the personal and comfortable qualities of simplicity and informality. However, the pressures and demands of responding to and dealing with the multiple changes that occur during a period of rapid community change appear to require this transition. The most effective leaders in impacted communities have generally been those who recognized when such a transition was necessary and who made it with efficiency and decisiveness. The characteristics of political diversity/complexity that might be important for an assessment are primarily those which indicate the current degree of formalism and regulation in the local government, and include the following:

1) Which government officials (both city and county) are in full-time, paid positions.

2) Whether the community or county has a full-time administrator and/or planner who is professionally trained and how long that position has existed.

3) Whether there are formal local procedures (forms to fill out, meetings to attend) for the issuance of building permits and subdivision developments, and whether there is a planning department.

4) Whether the participants at town council or county commission meetings make formal presentations, or whether the meetings are informal discussions.

5) Whether regular town/city council and county commission meetings are held, and whether decisions are actually made or presented at the meetings or are made informally elsewhere.

6) To what extent local officials are accustomed to dealing with outside agencies.

Questions that can be asked to determine which characteristics of the existing environment need to be described include the following:

1) Would the proposed action result in any regulatory demand on the local government that would introduce new organizations, agencies, or regulations?

2) Would the proposed action cause an increase in population that would necessitate major expansions of facilities and services or raise the issue of zoning and land use control?

3) Would the proposed action substantially affect the local government's budget to the extent that an administrator or comptroller would be required?

4) Would the changes introduced by the proposed action be precipitous (large and fast) and/or would there be major fluctuations in action-related inputs by year? Both would increase the administrative burden on local political officials and increase the pressure for greater complexity.

Data sources. The principal sources of data are local government officials, rosters of government employees, local newspapers, and interviews with local residents. Answers to many of the questions can be developed in collaboration with the person responsible for the facilities/services analysis.

Social Diversity/Complexity

Variables. Typically, as population increases, so does the social diversity and complexity of the community. Often there is a greater variation in ethnicity, religious preference, age, or race for larger populations than for smaller ones. A large influx of people inevitably results in increased diversity in personal background and frequently in the norms or values which govern people's behavior. In fact, a frequent fear expressed by longtime residents is that the influx of new people will cause the community to lose its conservative, agricultural, rural orientation, and goal structure. Parents in communities undergoing large population and economic change often express concerns that their young people will get jobs which bring them together with people holding different values. It should be noted here that the kind of jobs generated by many of the resource-based activities likely to be considered by users of this guide are similar to either the agricultural or the blue-collar work traditionally available in most western communities, so the norms may not be as different as people fear.

One thing that resource development often does that affects the complexity of most small towns is to introduce "transients." The introduction of people who are not residentially stable into a small, residentially stable town causes change and frequently some conflict. If the number of in-migrants is large, the change can be great. Longtime residents in small western towns often can't imagine residential

mobility and see newcomers who do not make a long-term commitment to the community as "strange" and threatening to the community orientation they value. This can result in antagonistic behavior and stereotyping. Because transiency tends to be linked to particular occupational groups (especially construction workers), it is often difficult to separate the issues of transiency from those of actual occupational and lifestyle differences. It does appear that projects which will have a high worker turnover and which will introduce large numbers of temporary residents into a community will create a greater sense of social disorganization and (at least temporarily) complexity than those with smaller and/or more stable work forces. The number of new faces that community residents have to deal with is important. A high turnover among newcomers has been found to contribute strongly to the loss of the sense of "knowing and being known" in a community that is so important to many long-time residents of small towns.

It must be remembered that social diversity means different things to different people, since one of the tasks of the social assessor is to determine how changes will be viewed by different stakeholder groups within the community. The homogeneity which is valued by one person may be seen as confining and restrictive to another. An increase in the diversity of the population may "liberate" existing minority groups in the community by moderating the social pressure to conform to the patterns of the dominant group or by reducing their visibility as the "other" group.

In the past, a large majority of the in-migrants on resource-based projects in the West were residents of the region, thus reducing the social diversity that would have been caused by large numbers of workers from outside. Because of changes in the national economy and the potential for the simultaneous demand for very large numbers of workers by synthetic fuels, oil shale, and tar sands projects, it is not clear that previous trends will continue. Since the regional and ethnic characteristics of any in-migrating population associated with the proposed action is so important to the determination of potential changes in social diversity, it is recommended that this matter be discussed with the

economist when the alternatives being assessed involve the in-migration of any substantial number of people.

Characteristics to consider include the following:

1) The ethnic and religious diversity of the existing population, with particular attention to situations with one dominant and one subordinate group and to recent large changes.

2) The residential stability of the current population (an estimate of the proportion of life-long residents would be ideal).

3) An indication of the number of different voluntary organizations in the community, membership patterns, and the extent of change during the last five to ten years.

4) An indication of the extent to which community residents view the community as composed of factions or separate groups (for example, do residents divide their community into townspeople, ranchers, Mexicans, newcomers, transients, etc?). These often correspond to the stakeholder groups, and their description can provide useful information about residents' perceptions of the community.

5) The patterns of attitudes toward the proposed action. Do they follow established patterns or do they represent new coalitions or divisions?

6) The extent to which the community is experienced in dealing with transients; for examole, through the presence of resource development projects, military bases, tourism, or universities, and their overall perception of transients (previous negative experience could predispose the community to antagonism).

Questions to ask that would determine the relevance of these characteristics include:

1) Do residents in the community take opposing positions regarding the proposed action in a way that could result in the enhancement or establishment of a "we-they" distinction between people?

2) Will the proposed action introduce (or remove) a sufficient number of people to substantially alter the residential stability of the population?

3) Will the proposed action introduce large numbers of transients (5 percent of the existing population or more)? Is the community accustomed or unaccustomed to transients? Are they prepared to deal with them pleasantly?

4) Will the population in-migrating (or out-migrating) due to the proposed action have demographic characteristics relatively similar to the rest of the population or will it have substantially

different characteristics in terms of age, sex, ethnicity, religion, and regional origin?

Data Sources. Data on demographic and residential stability variables are available from the U.S. Census at a community level, but only for census years. If the assessment is being conducted some years after the census, these data can be used as a basis for discussing recent changes with community residents. School and law enforcement personnel can often provide helpful information about demographic characteristics and recent changes. They can also often provide a good indication about transient populations and particular community groupings, especially if they correspond to geographic neighborhoods or income levels.

Telephone directories and local newspapers can provide a quick indication of the numbers and types of major permanent voluntary organizations such as churches, fraternal organizations, and unions. Local chambers of commerce frequently compile lists of such organizations and can also provide information about organizations serving transient populations. Interviews with local residents and the review of local newspapers and other public documents will be the principal sources of information about attitudes toward the project and perceptions about the social groupings in the community.

Estimates of the characteristics of action-related population will generally be developed in collaboration with the economist and the facilities/services analyst, since the estimates depend upon the type of employment, wage scales, job duration and location, competition with other projects for workers, availability of housing and other amenities, and employment policies. Knowledge about the community and its likely response to newcomers can provide useful information for these estimates.

9.2.3.2 OUTSIDE LINKAGES

Variables.

One of the important aspects of a community's social processes is whether decisions about investment, distribution of resources, new

projects, and regulatory controls are made in the community or by people outside the community. Resource development and management often increase the number of outsiders making decisions that affect a community and the relative importance of those decisions to the community's ability to function and respond. For example, when a federal agency or a major coal company initiates an action, important decisions about the number of employees, development plans, and hiring policies are often made at the regional or national headquarters of the company, far from the local community. In addition, resource-based projects frequently require that a variety of state, regional, and national government agencies be consulted or involved in monitoring, providing assistance, and regulating conditions in study area communities. These outside linkages influence the community's adaptive capability.

Outside linkages can have both positive and negative effects locally. On the positive side, linkages to outside groups -- state, regional, national, international -- can enhance the community's ability to acquire assistance such as federal grants, loans, information, or political support. Outside agencies may be in a position to alleviate specific local problems. For example, it is not unusual for towns in the West to feel boxed in by federally managed lands. Land for expansion can be very scarce, creating difficulties for the community. On occasion, land trades or sales have been arranged to help solve such problems. By providing technical know-how and political support, private companies may help local communities obtain assistance, grants, or loans.

Many of the communities experiencing rapid resource-based growth during the 1970s needed additional financial assistance to provide the large capital facilities the increased population required. A notable difference between communities that were able to provide these facilities and those that were not was the ability of local leaders to establish effective linkages outside the community and draw additional resources from the outside into the community. In these cases, locally initiated outside linkages provided access to badly needed resources that would otherwise have been unavailable.

On the negative side, outside linkages can mean loss of local autonomy and the withdrawal of resources from the community or area. An increase in federal presence can usurp local people's control or ability to govern themselves. Large industries and agencies are likely to have greater political power and economic resources than local political leaders, and they may use this power to overrule or bypass local decisions or to drain resources from the community.

Similarly, large nationwide chain stores, which may be attracted to the area by the increased population and buying power generated by some resource-based projects, frequently have better access to financing and a broader sales base. Their superior access to materials and their large size can make it difficult for local businesses to compete, although the presence of such large, high-sales businesses has advantages for the community as well, such as a wider selection of goods, lower prices, and the ability to expand to meet increased demand.

The influx of large numbers of new residents with ties outside the community can also change the outside linkage characteristics of a community. These outside ties can serve as links to additional information, to emergency assistance, and to emotional support. They can also reduce the density and intensity of personal contact among community residents and diminish affiliation with the local community.

A principal purpose of analyzing outside linkages is to determine how the community's existing and potential outside linkages would affect its ability to obtain and control resources and to respond to change. An additional purpose is to identify significant changes in outside linkages that would affect the other social organization processes or indicators of community well-being and community perception.

Characteristics of a community that might be important for the impact analysis include the following:

1) The existence of local ties to state government in the form of local residents holding state positions or personal relationships between local leaders and state government officials.

2) Demonstration that the community has been effective in obtaining state or federal grants or programs during the last five to ten years. This could take the form of being selected as the site for state institutions or programs (schools, fairs, rodeos, conventions) or of obtaining state or federal assistance for economic or community development.

3) The number and type of national or international businesses or agenies located in the community, such as national energy companies, chain retail stores, national financial institutions, state or federal agencies, or national voluntary organizations.

Questions that would indicate which of these characteristics would be important for analysis of the proposed actions include the following:

1) Would the proposed action increase the local presence of federal or state agencies, especially in roles which would affect local control of resources?

2) Would the proposed action alter the economic conditions in the community in a way that would increase or decrease the number or role of nonlocal businesses? Would this change result in competition between locally and nonlocally owned businesses?

3) Would the proposed action create sufficient strain on local resources that the community's ability to respond would depend on its ability to obtain outside funds or technical assistance?

4) Would the characteristics of the proposed action introduce large numbers of workers with strong outside ties whose duration of stay in the community would be short enough to discourage them from affiliating with the community?

5) Would the sponsor of the proposed action use its outside linkages to increase the resource base and economic diversity of the community, or would it use them to extract additional resources from the community?

Data Sources

Analysis and interpretation of data on outside linkages is difficult. One reason is the potential for a linkage to function in either a positive or negative way -- for providing resources or for extracting resources, for supplementing local political power or for diminishing it. Another reason is that some of the most important linkages are informal and hence are extremely difficult to identify and assess. National trends toward increased outside linkages were very strong during the last decade. This has made it difficult to determine what

proportion of the change observed in communities impacted by resource development were attributable to growth. In addition, it is an area where it has been found difficult to avoid making unwarranted value judgments; there is often a tendency to favor local control and to overestimate the adverse effects of outside linkages.

Information about the number and types of businesses, agencies, or organizations that represent formal outside linkages can be obtained quite readily from the yellow pages of the local telephone directory. It is generally not necessary to be exact; the question is one of major changes. Much of this information about externally linked businesses and their role in the community can be obtained by interviewing an official of the local chamber of commerce or a local developer. If the community is large and the listing would be a substantial task, it is probably not necessary to make more than a rough estimate.

Information about the community's ties to state and federal government will probably be most readily available from interviews with community leaders, although local newspapers may also be helpfu .

Information about the community's ability to obtain state and federal programs and monies may be available in summaries of resource distribution published by the states or agencies, or it may have been compiled by a local government official. Otherwise, this information can be obtained through interviews with local officials. As with the externally linked businesses and organizations, the list does not have to be complete. The point is to determine whether or not the community has a demonstrated ability (or inability) to obtain outside assistance.

Information about the characteristics of action-related workers would be available from discussions with the economist, as would estimates of action-related changes in externally linked businesses. The estimates of the action-related changes in the presence and role of state and federal agencies or large-scale industry would result from an evaluation of the institutional and regulatory characteristics of the proposed action. This could be estimated in consultation with the legal

council of the proposed action's sponsor, through examination of legal requirements, and through examination of records documenting what has happened with similar projects in the same state.

The availability of information about the characteristics of the sponsor of the proposed action and its use of outside linkages will depend very much on what types of assessment are being done. Unless a project sponsor has been specified, this factor remains an unknown.

9.2.3.3 DISTRIBUTION OF RESOURCES AND POWER

Variables

Throughout the guide, the term "stakeholder" has been used to indicate those groups or classes of people who will be impacted, either directly or indirectly, by any of the proposed alternatives. Because they will be impacted, they have a "stake" in the decision, whether they are aware of it or not. Many stakeholder groups will be active in advocating the position they believe best represents the interests of their group. Other stakeholder groups may be less able to represent their interests or may even be unaware that they have a stake in the decision. One of the functions of social assessment is to provide visibility to the full range of a proposed action's potential effects, so that the groups that will be affected can understand what their stake in the decision really is. This function is nowhere more clearly manifest than in the social processes which are described in this section. These are the social processes by which status, power, and access to resources are distributed to people within the community.

A purpose of the assessment is to identify likely changes in the stakeholder groups' access to resources and their probable reaction to these changes. If a proposed action introduces relatively small changes, the likelihood of a significant effect on the distribution of resources is slight. A concern in these cases would be to ensure that the unique problems faced by distinct groups would not be exacerbated by the change. If the proposed action will introduce major changes in

population, jobs, and income, the processes by which resources are distributed may be very significant in determining the social outcome for various stakeholder groups, as the distributional process itself may be substantially affected by the changes. Four aspects of distribution of resources that can be particularly important are: (1) equity, (2) criteria for status or power, (3) basis of obtaining wealth, and (4) distribution of resources.

Equity. One of the crucial issues a social assessment must address is that of equity. Usually "equity" means that the resources of a community are distributed equally among all its members. This almost never occurs. In fact, it is not entirely clear that people really believe that complete equity is desirable. Even societies advocating equity as their highest value never completely achieve it. Indeed, the need to achieve equity has been used as justification for suppression. It is easier to advocate one's own political viewpoint regarding equity than to objectively describe the degree to which a proposed alternative will increase or decrease equity and what that means to those affected.

Stakeholder groups will normally resist erosion of their absolute or relative status, power, and wealth. If an increase in the wealth, status, or power of one group occurs at the expense of another, conflict is inevitable. The fact that the distribution tends to increase equity is unlikely to diminish the conflict in the community, although it may alter the way it is expressed. The one condition under which it may be possible to increase equity while not significantly reducing the standing of an existing stakeholder group is when an economy is expanding, as it might when a major new development such as an energy project occurs. In reality, it appears that there is little chance that the benefits of a project will be distributed equally because processes have been established; people are likely to be in positions to ensure that they will gain a disproportionate share of the new resources. Existing inequities may be reinforced rather than eliminated.

Some unique cultural groups are being exposed to resource development in a particularly intense way because of the geographic proximity

of resource activities and the land to which they are tied by cultural beliefs and legal arrangements. The introduction of a resource development project on or near the lands they hold by special, generally non-transferable rights can present genuinely new, unfamiliar, and possibly culturally incongruous means for acquiring wealth, status, and power that they can not completely avoid. This has been particularly true for some Native Americans and Hispanic land grant holders. In some cases, the creation of new paths to wealth, status, and power is viewed as an opportunity to alter the existing pattern of resource distribution. In others, it is viewed as an unwanted imposition by outside actors which constrains the decision-making capability of the group.

Criteria for status or power. There are several potential criteria for status or power in a community. These include: wealth, property ownership, a family name or family role of historical prominence, and role played in the community (e.g., major accomplishment, etc.). Different communities may put a slightly different emphasis on each of these factors, although most small western towns are relatively similar. If the population remains stable or if the majority of the in-migrants are from within the region and share the same general criteria, the status criteria of the community are likely to change only slowly.

In communities where status is largely determined by family name, blood relationship with numbers of community members, or other factors which generally favor long-term residents, introduction of even a large project may create no significant change if the majority of the newcomers ascribe to the same type of status criteria as the long-term residents. This is because the newcomers cannot challenge long-term residents for status within the existing framework. However, in communities where status is largely determined by employment or wealth (an unusual situation in small western towns), the introduction of a number of highly-paid managerial and technical people may cause disruption in the relative standing of longtime residents.

The effects of a proposed action on the relative status of longtime residents (and on the prevailing status criteria) will depend upon

(1) the number of newcomers, (2) their status relative to the longtime residents according to the status criteria prevailing among existing community residents, and (3) their status relative to the longtime residents according to the status criteria held by the newcomers.

As of the early 1980s, no marked change in the basic status structure has occurred in those western communities experiencing even large-scale resource development during the 1960s and 1970s, although some broadening in the criteria for obtaining status or power has appeared and the stratification systems have frequently become more complex. The changes that have occurred have been relatively gradual, indicating that such development may initiate a long-term change, rather than an abrupt short-term modification. Those groups or individuals who may be losing relative status or position have generally anticipated these changes, resisted them, and expressed concern about additional changes that may result from further development. (Such concerns can be addressed in the section on attitudes toward change and perceptions of community well-being.)

Basis of obtaining wealth. In most rural communities in the West, land ownership has been the primary basis for obtaining wealth, with some opportunity in professional or service careers such as medicine, law, real estate, or banking. People successful in these roles often held property as well. This meant that the basis for wealth and its associated status and power was tied to the geographic area and natural resources in a very physical way.

A new basic economic activity in an area can change the basis for acquiring wealth and provide new opportunities for particular groups of locals. In general, the shift that occurs with large-scale energy development is from ranching/farming to industrial activities. If development activities have been under way in an area for a long time and have progressed gradually, there is a reasonable possibility that those who have wealth in the community will be participating in the development activity.

However, most of the truly large-scale energy development now occurring in the rural parts of the West is controlled by large, multinational corporations which relocate managers and workers into the area to develop their resources. The newcomers, even the managers, are generally neither the owners of the resources being used nor even the ultimate decision-makers regarding their use. But managers and senior technical people do control access to the decision-makers whose decisions may have considerable impact on residents and the community. Managers, senior technical people, and skilled workers generally receive large salaries compared to the norms of rural towns. To the extent that wealth is a significant determinant of status or power, these management, technical, and skilled crafts jobs present an alternative path to acquiring wealth and an alternative means to status and power not controlled by the existing community. The cumulative effect of these alternatives may be to modify the existing stratification system over the long term.

It should be noted, however, that although industrial/corporate employment may not have been prevalent in the community prior to the resource development, many small rural communities have a long history of having young adults leave the community for employment in these types of jobs. Access to industrial employment may therefore not be new; what may be different is its visibility and immediacy in the community.

Distribution of services. Public services are not used equally by all stakeholder groups and are not equally important to each group. Typically, those groups with relatively low incomes are more dependent upon public sector services and resources than are the more wealthy, although the wealthy may be utilizing some of the public services more heavily than the poor (schools, roads, etc.). Because people with wealth are able to obtain the services they need in the private sector, a proposed action that places sufficient demand on public services to result in poorer quality or diminished availability of services can place a greater burden on those groups that are highly dependent on these services than on those groups who have access to services in other ways. For this reason, in assessments where service availability prob-

lems are expected to occur, it is not enough just to know the cumulative effect on facilities and services, it is also necessary to know which groups in the community receive the services, what alternative means they have for obtaining these services, and what the impact of the loss or degradation of these services would mean to them.

Characteristics of the existing environment that could be important to the assessment of the distribution of resources and power include the following:

1) Definition of the prevailing criteria for attaining status, wealth, and power, with attention to the possibility of distinctive sets of criteria for any unique cultural groups present.
2) Indication of the relative positions of the major stakeholder groups in terms of wealth, status, and power.
3) Description of public services utilization patterns by major stakeholder groups.
4) Identification of the types of changes (and potential conflicts) in wealth, status, and power anticipated by each of the major stakeholder groups. These anticipations can influence the responses and their attitudes toward the proposed action and the newcomers.

Questions that would help determine the relevance of these characteristics for the particular assessment being conducted include the following:

1) Would the proposed action change the employment or income characteristics (either by creating new jobs with different earning potential or by affecting the earning potential of existing jobs or resources -- for example, real estate or commercial activities)?
2) Would the proposed action introduce people who would challenge the existing status criteria or compete with longtime residents for status?
3) Would the proposed action introduce a sufficient number of people to affect service provision characteristics?
4) Would the proposed action be perceived as a threat by powerful stakeholder groups?
5) Would the presence and policies of the action's sponsor affect the distributional processes established in the community?

Data Sources

One place to start compiling data on community distributional processes is from the federal census, where income, occupation, and housing characteristics can be obtained for the population as a whole and for major ethnic groups -- blacks, the Spanish-surnamed, and Native Americans. If stakeholder groups reside in geographically distinct areas, tract data from the federal census can be used to identify differences in these characteristics. A drive through the area to observe the neighborhoods can also be helpful, although one must be cautious about assumptions regarding housing type and income. The agricultural census may provide useful information about characteristics of the rural residents that is often more difficult to obtain from field interviews.

Interviews with service providers can be used to identify and provide a qualitative description of groups with particular resource characteristics and to provide estimates of current usage patterns and latent needs by stakeholder group. Although these estimates will not be exact, they are generally sufficient.

Definition of the prevailing criteria for status, wealth, and power and information about the relative positions of the stakeholder groups can be obtained by a combination of observation and interviews with local residents. These interviews and public documents can be used to identify anticipated changes and conflict.

The effects of the proposed action on income, housing, service availability, and the characteristics of the in-migrating population can be estimated by discussing them with the facilities/services analyst and the economist and by examining information about the proposed action and reports describing similar actions. It should be stressed that these will be estimates. The purpose is to get an idea of what types and magnitude of change might be introduced.

9.2.3.4 COORDINATION AND COOPERATION

Variables

The ability of a community to adapt to and control change is determined to an important degree by its ability to coordinate its efforts and resources and to establish cooperation among the various elements of the community. Of all the characteristics of the existing environment, few are more important for assessing the consequences of a proposed action than the extent to which the community can and will coordinate its efforts to influence its future.

The coordinative characteristics of a community are closely interrelated with the characteristics of the other social organization processes. Coordination involves the processes of establishing a commonality of perspective and managing and controlling conflict in the community. Coordination is made more difficult by high levels of conflict and by increased complexity and diversity. The need for more complex coordinative mechanisms generally corresponds with an increase in the complexity of the community.

The ability of a community to coordinate its efforts and resources depends upon the interaction of five major factors: the characteristics of the community leaders, the characteristics of the community's organization in terms of diversity/complexity and cooperation, the extent to which local resources are controlled by outsiders, and the characteristics of the issues to be addressed. Although all five are important and interrelated, personal characteristics of community leaders has been identified as the single most important factor in the ability of energy-impacted communities to organize, cooperate, and address community problems. Unfortunately it is also the factor that is the most difficult and politically sensitive to predict.

Since the ability of a community to coordinate its efforts and obtain cooperation can have a major influence on its ability to successfully respond to problems, it is important to determine how this process

is currently operating in the study area communities and then to estimate (1) how this characteristic of the existing social organization will affect the development process and (2) how it will be affected by the effort.

In most assessments, the objective will be to determine the extent and effectiveness of the coordinative process in the existing community and to understand how the community is likely to respond to the changes introduced by the proposed action. This involves understanding what avenues for affecting the outcome of the proposed action are available to the community. Characteristics of the existing environment that could be useful for this aspect of the assessment include the following:

1) Identification of community projects that have been initiated in recent years (such as schools, libraries, courthouses, recreational facilities, water or sewer plants, roads, economic development, community events), and description of how the effort and resources were coordinated to make the project succeed or how the coordination effort failed and the project was abandoned.

2) Identification of specific coordinative or control mechanisms that have been established in the community to solve problems (for example, joint powers boards, task forces, councils, zoning), and description of the process by which they were established.

3) Identification of major and persistent conflicts or issues in the community, and description of how the conflict is being controlled or directed. Here it is especially useful to examine the mechanisms that have been developed to control conflict between major stakeholder groups, particularly those which share political power, and to incorporate newcomers into the community.

4) Identification of the mechanism available to the community to affect the changes introduced into the community by the proposed action (for example, limiting in-migration by prohibiting new water connections, mobile homes, or subdivisions, or requiring that local residents be hired rather than outsiders) and the effectiveness of the community's response.

Questions which can be asked to help determine which of these characteristics will be important include the following:

1) To what extent could the outcomes of the proposed action be different if the community responded in the most effective instead of the least effective way possible?

2) To what extent could the outcomes for the proposed action be affected by the community's responding in the most aggressive and coordinated way possible, in the most supportive and coordinated way, and in the least coordinated way possible?

3) To what extent could the changes introduced by the proposed action reduce or enhance the coordinative processes in the community?

Data Sources.

Some information about the coordinative mechanisms and the coordinative processes in the community can be obtained through review of documents describing community political structure over the last several years and examination of local newspapers, but the primary source of information will be interviews with community residents (particularly those involved in the projects) and observations about how the community approaches problems and how successfully projects have been completed. It should be remembered that local politics are notoriously erratic and idiosyncratic. Consequently, the objective in the examination of previous community response is to abstract patterns; it is important not to be distracted by all the details of the local political process. In addition, it is important to remember to listen analytically to the interviews with local residents and to get the perspective of a variety of different people. Guidance on selecting respondents and conducting informal interviews is provided in Chapter 14.

Reporting about how coordination and cooperation are affecting a community can be politically explosive and has the danger of being perceived as meddling in local affairs. This is a sensitive area which requires the continual exercise of judgment. The purpose of an assessment is not to dictate to local governments and private groups how they should provide for the health and welfare of the constituents. The responsibility of agencies under NEPA and other legislation is to ensure that potential harmful effects are identified and taken into consideration in the decision process. Obviously, determining what and how to present information about the effect of existing coordination and cooperation processes on social outcomes is a judgment area. Questions

about the appropriate way to deal with this topic should be discussed with colleagues, the project manager, and the assessment team leader.

9.2.3.5 PERSONAL INTERACTION

Variables

Personal interaction has been included as a separate category, although in many ways it summarizes aspects of the other four social organization processes. Personal interaction is used here to mean the way in which people in a community identify and respond to one another. It has been kept separate because changes in the process of personal interaction have often been identified as an important consequence of introducing large-scale projects in rural areas. Longtime residents of impacted communities consistently identify changes in personal relationships as one of the most personally meaningful consequences of the project's effects.

The nature of personal interaction is affected both directly and indirectly by the types of changes introduced by resource-based development. Changes in the size and demographic characteristics, the complexity and diversity, the mechanisms by which resources are distributed and shared, and the extent to which community residents have to deal with outsiders can all affect the patterns of personal interaction. Consequently, a proposed action that affects those characteristics of the community is likely to affect its personal interaction characteristics as well.

There are several particular effects on personal interaction that can occur in impacted communities. With an influx of a large number of people, particularly if there is high turnover among them, community residents will not be able to know everyone in town. Interaction based on personal knowledge will no longer be possible in many areas of community life. In communities where people can no longer interact informally on the basis of who they are, the dominance of personal interaction in the patterns of everyday life will decline. Although it

is unlikely that primary relationships will be lost, the proportion of strangers encountered will increase; in public exchanges, people will begin to be treated similarly, according to established formal rules.

Associated with the loss of personal recognition and informal interaction is a change in the basis for identifying and categorizing people. Residents become identified and categorized not on the basis of personal knowledge (knowledge of their character, attributes, and status), but on the basis of their organizational affiliations and memberships. This happens because an increased proportion of the daily activity of community life is conducted in and through organizations. Changes in the procedures for check-cashing or paying by check are an excellent example of how and why this change takes place. In many small, rural communities, most residents can cash personal checks with no questions asked and without need to present personal identification. However, these privileges are not necessarily accorded to all residents equally. Some residents may not be allowed to cash checks or buy on credit. The basis for these distinctions is knowledge about the person. This informal system works only as long as the participants feel they have sufficient knowledge about each other to make accurate judgments about whom to trust. Such knowledge generally takes a long time to acquire.

When new people enter the community, several things happen that cause this informal system to change. The first and most obvious change occurs when newcomers arrive in the community. Many of these newcomers want to use personal checks to purchase goods and services. Since no personal relationship has been established that would allow the merchant to judge the newcomer's trustworthiness, the newcomer may be asked to provide identification and may be required to have a local address and phone number, even to use checks drawn on local banks. At first, long-time residents can usually continue to use checks as before, although the use of counter checks may be eliminated.

The next changes occur when newcomers begin to work in local stores and banks. The newcomers are usually unfamiliar with community residents and are not able to distinguish longtime residents from newcomers. Consequently, they are likely to ask everyone wishing to use a check to show identification. If growth or turnover remains high, this may become an established procedure, both to minimize confusion and to avoid the appearance of discrimination.

The final step in the process occurs when new businesses enter the community, especially those headquartered elsewhere. The policy of these businesses may be to cash no checks, to cash checks only for persons showing two pieces of identification, or to cash checks only for persons with a check guarantee card. At this point, there are few differences in the way longtime residents and newcomers conduct everyday business in the community, and the basis of recognition has essentially shifted from knowledge of the individual to trust in an organization.

When this happens, both newcomers and longtime residents must find organizations that can be used to help identify and characterize themselves. For some newcomers, especially management personnel who can be sponsored by the company or agency implementing the action, this may create no problems and represent no change from accustomed practice. For others, such as blue collar workers who lack such company affiliation, this can be more difficult, although it is probably not unfamiliar. For most longtime residents, obtaining organizational affiliation may not be difficult, but the necessity is likely to be distasteful, since it represents a loss in their sense of community and personal prestige.

Characteristics of the existing environment which could be useful include the following:

1) The extent to which local residents share a common background, especially in terms of residential location

2) The extent to which community interaction is informal and idiosyncratic, as opposed to formal, and based on rules or procedures

3) The extent to which informal interaction and informal ways of getting things done are valued as a way of life

Questions which will be helpful include the following:

1) Will the proposed action result in sufficient change to cause the informal way of doing things to be replaced with more formal procedures?

2) Will the proposed action result in changes that change the extent to which residents know one another?

3) Is the potential for decreased familiarity and informality a concern?

Data Sources--

Informal interviews and observation will provide the major sources of data on personal interactions unless a survey covering this topic has recently been conducted in the area. Some data on changes in personal interactions with growth are available in secondary sources, but evidence is frequently limited. Schools, banks, and law enforcement agencies are good places to look for indications of the prevailing nature of interpersonal relationships.

9.2.4 The Social Organization Model: Indicators of Social Well-being

In the final analysis, the whole purpose of analyzing direct project inputs, community resources, and community social organization is to determine whether and in what manner a proposed action will alter the social well-being of the community. In a very real sense, the purpose of the social well-being component of the model is to integrate and summarize the consequences of the changes that have been analyzed in the previous three components -- project inputs, community resources, and social organization. Because of its summary and interpretive role, this component deals with many of the same variables and topics that have been addressed previously, but in a somewhat different manner. Previously, the focus has been on breaking down the complex elements that

result in and indicate social change to provide pieces that are simple enough to analyze. Here, the focus is on integrating this information to determine how the changes that have been identified will affect the well-being of individuals in the study area or community.

This is not as easy as it might seem. The concept of "well-being" is complex and ambiguous. It is used to indicate the net effect of a combination of subjective and objective factors whose composition, let alone relative importance, remains unclear. Does well-being exist merely because people perceive themselves to be well off, or are there some objective measures that must be applied? Does the fact that people perceive changes in well-being mean that they have occurred? Inevitably there is a kind of tension between the subjective and objective determinations of well-being that makes the analysis difficult. Well-being is also a relative term. Comparisons of past to future, this community to another, and reality to expectations all play a role in determining perceptions of well-being and complicate the interpretation of both subjective statements and objective indicators.

There is also a difficulty in that people experience well-being as individuals, while the assessment is attempting to determine the well-being of the study area or community as a whole. Since a social, rather than a psychological, assessment is being conducted, individual personality characteristics are not studied. Yet obviously individual personality characteristics play a role in determining what changes in well-being an individual will experience as a result of a particular project.

In actuality, the social assessor attempts to take into account both the objective and subjective components of well-being. The usual means of assessing social well-being is to consider:

1) Rates of behavior, such as suicide, divorce, crime, and family violence;

2) Access to resources, such as per capita or family income, public services, recreation; and

3) Perceptions of community and personal well-being held by area or community members, focusing on their interpretation and evaluation of the changes caused by the proposed action.

9.2.4.1 RATES OF BEHAVIOR

Variables

The following section discusses each of these three categories of well-being indicators, with guidance on how to determine which characteristics of the existing environment will be analytically important to the assessment of social effects. Despite the problems with the data that are discussed below, there is general agreement that the important rates of behavior to consider in assessing resource development projects relate to the following:

1) Crime
2) Divorce
3) Suicide
4) Infant mortality
5) Family violence
6) Alcohol and drug abuse
7) Public assistance and welfare
8) School dropouts and student turnover
9) Unemployment

Even though there is a general consensus that analysis of these behaviors can be useful in the assessment of effects on social well-being, there are three important qualities to remember in utilizing and analyzing information about them.

1) Lack of clear cause/effect relationships. The number of social variables is large, and the interaction among them is consequently complex. It is virtually impossible to say one single thing causes another. Does a dramatic increase in population cause divorces? It may be possible to answer "Sometimes -- under some conditions -- it depends." It may be more likely that the addition of a large number of young, single males is likely to increase crime, but an honest researcher will once again have to conclude that it depends. The social assessor usually finds him- or herself dealing with indirect relationships and probabilities, not clear and direct cause/effect relationships. This increases the difficulty of making clear distinctions

between the probable effects of various alternatives and of forecasting outcomes for situations in which many aspects remain uncertain.

2) The behaviors are indicators, not a direct measurement of well-being. Although it is possible to infer that if suicide, divorce, crime, and family violence all increase, social well-being has declined, but since social well-being is intangible, that is simply an inference -- not a direct measurement of social well-being. These rates of behavior indicate, but they do not measure. One of the problems is that all of these indicators look at individual or family behaviors, while the thing to be measured, at least in part, is community well-being. When a crime is committed, it is committed by an individual who inter- acts with a community; the reason for committing the crime is both highly individual and yet related to conditions in the com- munity. Because the individual component versus the community component can't be allocated (and, in fact, is the subject of considerable political debate), inferences can be made, but pre- cise measurements cannot, leaving an area of uncertainty about the net balance that is difficult to resolve.

3) The available data are often not good. First, the indicators which are used typically reflect the availability of data and are not necessarily the best indicators of well-being. For example, the emphasis falls on rates of undesirable behaviors because those are the ones measured. There aren't any available measures of how often neighbors or families help one another or work to improve the community. Yet obviously the incidence of positive behavior is equally important to well-being as the incidence of problem behavior.

 Second, variations in rates may be the result of differences in reporting procedures rather than in actual rates of behavior. Take crime rates, for example. Many western communities did not report crime rates systematically until the mid-1970s, and the quality of reporting continues to vary substantially from jurisdiction to jurisdiction. As a result, apparent differences in crime rate between communities may reflect differences in reporting, not actual differences in the incidence or rate of crime.

 Finally, the population of western communities is often so small and the incidence of the behavior so low that many of the commonly used measures are unstable and difficult to analyze at a community or county level. If the number of burglaries in the community in a year increases from four to eight, there has been a 100 percent increase in burglaries. But does that increase affect well-being? If it drops back down to four burglaries the next year, does that indicate that well-being has improved?

4) Well-being is related to expectations. Since so much of well-being has to do with perceptions, people usually think well-being is changing in the direction they expect it to change. People who expect a proposed action to improve their well-being usually concentrate on those indicators which correspond to

their expectations. Those who expect well-being to decline can usually find evidence to support that expectation. This makes it difficult to interpret the meaning and importance of changes in the various well-being indicators.

It should be noted that when analyzing behaviors, it is really necessary to consider both the incidence (the total number of times a behavior occurs) and the rate (the ratio of the number of times a behavior occurs in relationship to the population size). This dual approach is necessary because the analysis of these behaviors is used for two purposes. One is to determine whether the available community resources will be adequate to meet the additional demand created by the increase in these behaviors (more crimes and more welfare clients, for example), because an inadequacy would adversely affect community well-being and may generate additional problem behaviors. The second is to determine whether the social environment in the community is likely to be adversely affected by the proposed action, either through the introduction of people prone to behave badly or through the creation of circumstances that "cause" problem behaviors. These consequences are best shown through changes in the rate at which the behaviors are occurring.

Crime. Crime is one of the indicators which have consistently been found to be important to perceptions of well-being. Actually, it is not the number of crimes that will be committed which is crucial as much as the number of people who will feel themselves or those close to them to be victims of crime. As indicated above, there are significant problems with the crime data that are available for use in the description of the existing environment, since they often reflect reporting procedures and not the actual number of crimes committed.

Several factors associated with rapid growth are thought to contribute to an increase in crime:

1) An influx of large numbers of young adult males who, as a group, exhibit higher than average crime rates.

2) The presence of incoming workers, who often experience a period of low income and high expenditures when they first come into the community, which appears to be associated with bad check writing and theft.

3) Situations where services are inadequate, localized inflation exists, or personal interactions are poor, making newcomers (or old-timers) feel stressed, frustrated, angry, and out of control.

4) A high turnover among newcomers that reduces the effectiveness of informal mechanisms for controlling crime, such as watching out for strangers, and that encourages theft, bad check writing and vandalism.

5) Poor law enforcement due to inadequate or untrained personnel.

6) The juxtaposition of persons from different groups in situations (like bars) that encourage the development of arguments and fights.

There is a widespread perception in communities that have experienced rapid growth that crime has increased dramatically. The available data leave little question that the incidence of crime has increased in these communities, and there is considerable evidence that the rate of theft (of various sorts) and personal assaults (usually reflecting bar fights) have increased because of the growth, although there is little indication that other violent crimes against persons have increased. Most of the increase that has occurred appears to have been in property crimes such as burglary and misdemeanors. One problem in interpreting the widely held belief that crime is related to energy development is that crime rates increased dramatically throughout the nation during the 1970s. In future assessment it is important not to attribute to energy development crime rate changes that are caused by unrelated factors.

An increase in the number of crimes has definite implications for the number of law enforcement officers, jail space, and judicial services required. Law enforcement personnel often report feeling caught in the middle and expected to respond to situations that are beyond their control. This can cause morale and behavior problems among law enforcement personnel and high turnover, and it can adversely affect residents' perceptions of community well-being. In small communities, an increase in the number of crimes appears to affect perception of safety and personal security, whether or not the rate of crime increases.

Divorce. Divorce is one of the indicators for which data at the county level are usually available. But when an increase does occur, it isn't always clear what it means. One argument is that divorce is related to resource development because it reflects stress on family relationships due to poor living conditions (especially housing) and lack of community or social support. An alternative theory is that growth creates greater social diversity in a town, causing the social sanctions against divorce to be relaxed, thus permitting termination of unsatisfactory relationships. In addition, increased job opportunities for women may permit them to end unsatisfactory relationships. The question is whether a particular change in the divorce data indicates a decrease or an increase in social well-being. It should be noted that an argument can also be made that economic development should reduce the number of divorces, since it may alleviate economic pressures, a major source of marital stress.

Those factors potentially related to resource development that may have an impact on divorce rates are the following:

1) An influx (and retention) of young adults in the early stages of the family cycle, the group with the highest risk of divorce. Since most divorce figures are not broken down by age, this could produce a dramatic increase in divorce rate, which is more a function of the population composition than a change in any individual's behavior.
2) Problems of housing availability or other resources and services that can create high stress and a poor living environment and can increase interpersonal conflict and lower coping ability.
3) Extensive overtime, shift work, a sudden increase in expendable income, and other related changes that may strain family relationships.
4) A relaxation of social sanctions against divorce either because the community norms change or because informal controls are less effective.
5) Increased employment and marriage opportunities for adult women.
6) Less social and personal support provided by family and friends.

An increase in the divorce rate and the number of divorced persons has definite implications for community services and facilities, and for residents' perceptions of community, including the following:

1) Increased need for household support services and child care as the number of female-headed households (frequently having low incomes) increases

2) Increased demands on the judicial system and on those responsible for enforcement of child support payments

3) Increased demand for marriage and family counseling

4) Increased dissatisfaction (and disgust) on the part of traditional moralists who view such occurrences as indication that the community is failing

Suicide. Another indicator of social well-being is the number and rate of suicides, although suicide clearly reflects both personal and social problems. Regrettably, the data on suicides and attempted suicides are notoriously unreliable, and since suicide is a rare event under any conditions, the small populations in most communities experiencing the effects of resource decisions combined with the poor data make valid determination of how suicide rates have been affected by resource development very difficult.

Historically, suicide rates have generally not been found to rise during periods of rapid growth. If the growth is managed reasonably well, most residents of rapid growth communities (particularly those that previously were stagnant or declining) report a new sense of vitality and activity that, while stressful, is stimulating rather than depressing. Groups that do appear to be susceptible to depression are the wives of newcomers, particularly construction workers, who find themselves in poor living conditions with few support systems and who presumably despair that they will get out of this situation, and persons who are forced against their will to change their residence (through eminent domain purchases, etc.) or their livelihood.

In those towns showing a strong economic downturn after rapid growth, there are reports of increased suicides attributed to severe economic pressures, disrupted plans, and a sense of failure due to job loss. This phenomenon has been documented on the national level during periods of economic depression. Suicide clearly represents an extreme

in personal and familial tragedy, and the potential for such consequences as a result of the down cycle of resource-based growth warrants further examination.

Infant mortality. While acknowledged as a valid indicator of the availability of adequate maternal nutrition and health care, case studies have not shown any reports of substantial changes in infant mortality due to rapid growth. Infant mortality rates appear to be most affected by economic conditions and medical care, and the level of these two factors in the West is apparently such that only very major changes will affect the rate. The exceptions may be in areas with high populations of Native Americans, Hispanic land grant residents, or other particular cultural groups whose economic or health care practices may be affected in a major way by energy growth. Infant mortality rates, which are available from U.S. Vital Statistics and state divisions of vital statistics, are therefore not recommended as a particularly useful indicator in most assessment situations, with the exceptions noted above.

Family violence. Family violence includes such behaviors as spouse beating, child abuse, child neglect, and incest. While case studies reveal that law enforcement, mental health, judicial, and public welfare personnel in rapid growth communities consistently report concern about family violence, the statistical evidence to justify these concerns is not clear. There is a continuing debate among social scientists about whether (and how much) family violence has actually increased over the last decade or whether people are simply more sensitive to and disapproving of it, with the result that it is more likely to be reported. As with crime, there has been nationwide concern over the perceived increase in family violence that has occurred throughout the United States during the decade of the 1970s.

Although the link between rapid development and family violence has not been clearly established, several hypotheses have been formulated:

1) Construction workers, due to cultural/social background or family characteristics, are more prone to family violence than most residents of western towns. An influx in construction workers

will therefore cause an increase in the level of family violence in the community.

2) Housing conditions, lack of recreational facilities, and other resource availability problems created by rapid growth conditions lead to frustrations which are expressed in family violence.

3) Work characteristics such as shift work, overtime, and the development of work-related rather than family-related friendships all strain marital relationships in a way that provokes violence and neglect.

5) An increase in the number of single parents and families with stepchildren as a result of higher divorce and remarriage rates creates family situations that aggravate stress and are susceptible to violence, neglect, and incest.

Increased family violence can cause increased demands on law enforcement and medical and judicial facilities. In addition, the establishment of counseling services for both the abuser and the victim and the provision of shelters can increase the demand on social services and mental health services. As with many of the behavioral indicators, there is some evidence that family violence increases during periods of economic disruption, job loss, and residential movement such as would accompany the down cycle in rapid energy growth communities.

Alcohol and drug abuse. Alcohol abuse has been a long-standing problem in the rural West. Construction, oil, and gas workers are generally assumed to use alcohol as well as drugs at a somewhat higher rate than the resident population, and drugs are often thought to be introduced into the schools in greater quantities by the children of these workers, although data to document this are scarce. However, few communities report that energy development has done much but slightly aggravate a problem that already was occurring probably in response to national trends and pressures. Even in communities where drugs have been a major problem -- such as Rock Springs, Wyoming and Grants, New Mexico -- law enforcement, school, and public assistance personnel do not attribute the major source of the problem to resource development.

Drug and alcohol use patterns among the workers do not appear to change significantly in a new community. Workers with problems tend

to bring those problems with them, rather than developing them because they are living in a rapid development area.

An increase in alcohol and drug abuse is generally associated with increases in other problem behaviors. Consequently, any substantial increase in these behaviors would increase the demands on law enforcement and judicial services, medical and mental health services, and public assistance. The major concerns expressed in communities that have experienced rapid growth is the exposure of children to drugs and the increase in drunken driving. Increases in the number and violence of barroom fights are also often mentioned. In general, energy-related newcomers are perceived to be heavy users of alcohol and drugs who contribute to an already serious community problem.

Public assistance and welfare rates. In a number of energy-growth communites, public assistance and welfare personnel have reported that development tends to reduce the number of chronic recipients due to improved working conditions, but that it increases the number of persons requiring short-term or emergency assistance.

Apparently, the reasons for this increased short-term, emergency demand are the following:

1) Newcomers need assistance to cover the period between arriving and receiving the first paycheck. Many agencies report high caseloads but also very high turnover and short-term dependency.
2) Workers often come to an area before jobs are available and may remain for a period after the work has been completed or shut down. In addition, people who are genuinely unemployable may be attracted by the prospect of jobs. In all cases, emergency funds may be needed.

Major demands are made on public assistance services during "bust" conditions. There is generally no indication that resource development creates conditions which substantially increases the number of persons permanently dependent upon welfare, although lack of child care sometimes prolongs the welfare dependency of female heads of household.

School dropouts and student turnover. Parents and schools often express concern that youths will drop out of school to take high-paying jobs. Their fears are that future occupational and personal opportunities will be lost to the community's children and that valuing high pay over education will reinforce a materialistic orientation that they find objectionable. While these concerns are understandable, the social meaning of dropping out of school is unclear if, as has generally been the case in energy-impacted communities, the dropouts are profitably employed and can enter an occupation with high future earning potential. There is little indication that either parents or school personnel feel that youth are dropping out of school because of growth-related effects on the quality of schooling.

Statistics regarding school dropout rates are only sometimes available. If compiled, they can be obtained from state departments of education or from the local school systems. Unfortunately, although some school systems are now collecting the data necessary to measure turnover rates, this information is seldom compiled. School officials may be able to provide some indication of historic levels, but quantified data are not likely to be available.

Student turnover creates problems for schools that are similar to the problems residential turnover causes for communities -- a constant need to orient students, decreased familiarity, increased difficulty in coordinating activities and integrating students, and a tendency for short-term residents to mistreat school property. It also creates problems for the transient student similar to those for the transient community resident -- disruptions of personal and social ties and a great increase in the time and energy spent on getting oriented and settled.

Unemployment. Although unemployment could be considered a measure of access to resources, it is included here since questions have been raised about the extent of "voluntary" unemployment created by an influx of workers before project start-up or an influx of "ne'er- do-wells" attracted by the easy money of rapid growth communities. As with many of

the indicators, the available data on unemployment are not an actual measure of unemployment but rather a measure of "covered unemployment" -- those qualifying for unemployment compensation. Others, such as discouraged workers who do not actively seek work, are not included in these statistics.

Evidence from communities that experienced resource-related growth during the 1970s indicates that unemployment rates will normally drop during the growth period, although with population increases the actual number of people unemployed may not decline. In fact, particularly rapid development may sometimes lead to labor shortages that cause difficulties for employers. During periods of labor shortage, competition for labor tends to increase worker turnover and make it difficult for employers to obtain needed workers. In general, personnel in local unemployment compensation and welfare departments in communities which have experienced energy-related growth report little or no increase in the number of "hard core" unemployed. (There are generally relatively few who fall into this category; they are primarily people with long-standing behavioral or physical problems that prevent them from holding a job). The general conclusion of these personnel is that the conditions generated by growth, particularly rapid growth, are such that newcomers who remain unemployed tend to leave.

Employment services, generally provided by the state, have experienced an increase in service demand associated with large-scale projects, since the number of workers and worker turnover tend to increase during the growth period. In general, this increased demand was not viewed as a problem.

Information on rates and incidence of behavior occurring in the existing environment that could be useful for the assessment include the following:

1) Total number and per capita crime rates (from the FBI Uniform Crime Index, Parts I and II) and calls for service for each community and county in the study area as well as for the state for the most recent five years available.

2) Total number and per capita divorce rates for each county in the study area and the state for the most recent five years available.

3) Average monthly case load and expenditure data and per capita average monthly and expenditure data for public assistance and welfare for each county in the study area and the state for the most recent two years. Data can be obtained for individual service categories. These data should be supplemented with indications from the public welfare personnel about particular stakeholder groups or problem areas.

4) School dropout rates for each study area county and the state, and indicators from school administrators about student turnover levels. If possible, data for the last two to three years are sufficient and most useful.

5) Total unemployed and unemployment rates for each county in the study area as well as the state for the last two to three years. These data should be accompanied by an indication of unusually high unemployment rates by any stakeholder groups, based on interviews with local employment security officials (or the study's economist).

6) Annual infant mortality rates for each county and the state, broken out by ethnic group, if possible (if the study area includes one of the high risk groups).

Questions that will help determine which information is useful for the assessment include the following:

1) Will the proposed action result in any of the factors identified in the preceding discussion as potential causes of behavior problems?

2) Do the data or local perceptions indicate existing behavioral problems? (The reason for compiling all the data for the study area together is to allow comparisons and to identify discrepancies.)

3) Is there concern in the community that the proposed action will result in increases in any of these behaviors?

Data Sources

It is frequently difficult to obtain data for communities because many of the statistics are compiled only at a county level. Sources of information regarding crime rates are community, county, and state records of crime and calls for service as well as the FBI Uniform Crime Index, Parts I and II (contained in the FBI Uniform Crime Annual Reports, which are available at most university and college libraries).

The criminal divisions of most western state governments are now conducting crime analyses related to energy development and should be contacted before attempting to develop primary data on one's own. To protect against the data problems indicated above, it is important to discuss your data and analysis with the law enforcement personnel in the local area before publishing conclusions.

Data on the number of divorces filed per year in each county are available from U.S. Vital Statistics and from the division of vital statistics in most states. Rates are generally not published and therefore must be calculated using these data and population estimates generally available from the economic/demographic analyst.

Suicide information is available from U.S. Vital Statistics and the division of vital statistics in most states. In general, these numbers are small and unreliable and are not recommended as a valid indicator.

Statistics related to family violence are generally not compiled in a standard form. Available data can be obtained from law enforcement agencies, court records, welfare/social service departments, and special organizations focusing on family violence problems.

Statistics on alcohol and drug use are poor and may not be available. Possible sources include law enforcement agencies, school administrators, health departments, and court records. In some communities, special data collection procedures have been instituted to compile statistics on alcohol and drug problems.

Public assistance and welfare statistics can be obtained from the state's department of social services and public welfare. The data are generally compiled at a county level. Community level data may be available from local source agencies.

Statistics regarding school dropout rates are only sometimes available. If compiled, they can be obtained from the state department of education or from the local school systems.

Unemployment figures can generally be obtained from state or local employment service offices. Analysis of this data should be discussed with the economic/demographic analyst. The main task of the social assessor will be to determine whether unemployment is uniquely a problem of any particular ethnic or occupational groups.

9.2.4.2 ACCESS TO RESOURCES

Variables -

It is difficult to analyze overall social well-being effects because of the complexity of the interaction between community characteristics (including resource availability and social organization), individual behaviors, and resource distribution. The availability of resources such as income, community services, and a clean environment comprise a recognized component of social well-being. In fact, adequate resources are generally considered a principal requirement for well-being. Consequently, the major purpose of this part of the description of the existing environment is to summarize the net consequences of the changes in community resources, community population characteristics (due to action-related change), community social organization, and individual behaviors in terms of access to resources. Where appropriate and possible, a similar analysis should be conducted for each of the stakeholder groups. This information will be useful in the estimation of action-related inputs as well as in the forecasting of changes in access to resources likely to result from the proposed action.

Most of the indicators regarding access to resources will have been estimated by the economist or facilities/services analyst in their analysis of community resources. The purpose here is to reevaluate these assessments in light of the analysis of the community's social organization and behavioral indicators and to present them in terms

appropriate to the analysis of well-being. The principal factors to be addressed are the following:

1) Access to income (per capita and per family), accounting for local inflation if possible
2) Access to community services, especially mental health, public assistance/welfare, medical care, law enforcement, and recreation
3) Access to environmental resources

Access to income. The effect on income varies substantially according to the type of resource management decision. Per capita and per family income has risenly substantially in many energy growth communities. It may be lowered for families affected by modifications of grazing regulations. For most resource management decisions, the distribution of income will not be even; some stakeholder groups will benefit or lose substantially more than others. Interviews in energy growth communities indicate that most longtime residents feel that both their families and their community have benefitted economically from the development. Ranchers express grave concern about the effects of grazing reductions.

Computations of per capita income or purchasing power will usually be provided by an economic/demographic assessor. Estimates of the current distribution of the income may be made by the economist but should be confirmed in general terms through the process discussed above under distribution of resources. Data will not generally be available to make more than quantitative estimates. Normally an increase in per capita income is considered a social good, although some care should be taken to be sure this represents an actual increase in purchasing power rather than an adjustment to localized inflation.

Access to community services. Another major indicator of social well-being is the accessibility of services in the community. Usually, the analysis of facilities/services availability is conducted by someone else. Guidance for conducting this assessment is provided in Appendix B. The analysis of change in access to services usually focuses on the following:

1) The present level of services in the community

2) The current distribution of services in the community (by age, sex, ethnic composition, religious preference)

3) The likely needs and access of the future population

4) The organizational or coordinative problems which are being encountered or may be encountered in future service delivery

The most important facilities and services to be considered for inclusion in the social assessment are the following:

1) Mental health -- number of personnel and types of services. The adequacy of these services and their accessibility are frequent problems in the rural West. Often there is a mental health center serving a multicounty area, which makes it difficult for many in the area to utilize the services.

2) Public assistance and welfare -- number of personnel and type of service. The service loads for this agency can change drastically with a large increase of new people, both due to problems of transients and increased payments for Aid to Families with Dependent Children (AFDC).

3) Medical care -- number of physicians by type, number of hospital beds, and utilization rates. The underlying problem in most rural areas is that the population cannot support a wide range of medical specialties or facilities. This can change only with major increases in population. The result is that in most small towns, many medical needs are met by referring patients to distant centers. Low utilization rates of local hospitals may mean that many patients are being referred to urban areas. Calculating the community's ability to provide medical services in the future requires a thorough understanding of the medical personnel and facilities in the area and how they are used in relation to facilities in distant urban areas.

4) Law enforcement agencies. The normal indicator for law enforcement agencies is the rate of professional officers per 1,000 population. However, in anticipating future demand, it is also necessary to consider whether present officers have the qualifications and training to deal with the kind of problems brought by a larger population. Organizational problems which would inhibit the provision of expanded services should be identified.

5) Recreational facilities. Information about existing recreational facilities will probably be compiled by the person responsible for land use, the facilities/services analyst, or the economist. Access to indoor and outdoor recreational facilities has been identified as important to perceptions of well-being. Conflict over the use of open land and outdoor recreational areas between newcomers and longtime residents has occurred in communities which have experienced rapid growth. The anticipation and potential for this type of conflict should be

examined. It is also important to determine what plans are being made to provide additional recreational facilities to meet the needs of any newcomers.

6) School facilities. Information about classroom space and staff will probably be compiled by the person responsible for facilities/services assessment. Quality education has been identified as important to perceptions of well-being. It is useful to determine what special effort is being planned to welcome newcomers and to provide any special counseling support that might be necessary.

Of the characteristics of the existing environment concerning access to resources, those that have been identified as being potentially important for the assessment include the following:

1) Per capita and per family income levels, with estimates of the relative position of the major stakeholder groups and comparison to state and national data.

2) Descriptions of the services and the number of personnel offered by the nearest mental health center and its distance from the community. This should include evaluations from service personnel, local residents, and the facilities/services analyst about adequacy of service for each stakeholder group.

3) Descriptions of the services and the number of personnel offered by the local public assistance and welfare agency and its distance from the community. Discussion should include evaluations from service personnel, local residents, and the facilities/services analyst about adequacy of service for each major stakeholder group.

4) Description and the utilization rate for the nearest hospital, its distance from the community, as well as the number and type of primary care physicians and the ratio of physicians per 1,000 population. Discussion should include evaluations from physicians, local residents, and the facilities/services analyst about adequacy of services for each major stakeholder group.

5) The total number and number per 1,000 population of uniformed law enforcement officers along with a description of the organization of the department and an evaluation of service adequacy and the capacity to administer an expanded department.

6) Evaluations by community leaders and residents of the adequacy of existing recreational facilities and programs (for major stakeholders with special attention to age groups), and a description of the mechanisms available for planning and providing recreational services.

Questions which can help determine whether these characteristics will be important to the assessment include the following:

1) Do any of the indicators point to inadequate service provision? Could this be aggravated or alleviated by the proposed action?

2) (If the schedule for the proposed action indicates) Have the service providers formulated a plan for responding to the demands generated by the proposed action? Are those plans realistic? Have they solved the problem of peak temporary requirements?

3) Do the characteristics of the service providers indicate that the demands created by the proposed action would be difficult to meet?

4) Do residents anticipate problems in any of these areas or express particularly high value for the current service characteristics?

5) Do the characteristics signal current or potential problems for any stakeholder group, given the characteristics of the proposed action?

Access to environmental resources. Aside from use of public lands for recreational or agricultural purposes, the assessment of actions related to the development of coal or other energy resources does not typically involve detailed examination of changes in access to environmental resources. If the proposed action were to substantially alter the supply or accessibility of an environmental resource, such as would result from modification of grazing regulations, wilderness designation, or dam construction, those aspects of the environment that would be altered should be included as part of the description of the existing environment, and data on resident's attitudes about and use of the affected component would have to be gathered as a basis for forecasting the consequences of the alteration.

Data Sources

Economic and income data should be available from the economist, based on census or Bureau of Economic Analysis data. The information about income distribution should be available from the interviews and from data collected for analysis of the distribution of resources.

will be required. As has been stressed throughout the guide, think through the time, budget, purpose, and scope of the assessment and adjust your work accordingly.

9.3.3 Summarize the Information Requirements

In order to plan your research, you need to review the process you followed in the previous section and to prepare a summary of the assessments information requirements. If you are examining multiple communities, this summary could take the form of a table similar to that shown in Figure 9-2. This summary will give you a good indication of the scope of information that you will need to obtain either from (1) primary field work or (2) secondary sources that might have addressed these characteristics.

Using the summary, it will be useful to review your available secondary sources, particularly any preliminary work done for the same proposed action, to identify how much of the information is already available. Based on the summary of information and the suggestions for sources of data provided in Section 9.2, you are ready for the next step, a review of the available sources and techniques for obtaining information.

9.3.4 Review Available Resources

The basic techniques used to gather the information necessary for an assessment are discussed briefly in this section. The techniques include the following:

1) Analysis of secondary sources
2) Interviews
3) Questionnaires/surveys
4) Workshops/meetings
5) Field trips and observation

A more detailed discussion of these techniques is provided in Section III.

FIGURE 9-2

Summary of Information Requirements

CHARACTERISTIC	TYPE OF INFORMATION	POTENTIAL SOURCES
Community Resources		
Social Organization		
Indicators of Well-being		

9.3.4.1 SECONDARY SOURCES

There are numerous secondary sources which can provide information about communities. These secondary sources are particularly helpful in defining the economic/demographic characteristics of the community, identifying the existing institutional structure and level of facilities and services (including additional requirements), and gaining some knowledge of the community's history. Normally, secondary sources cannot give you the "soft" data about community attitudes, values, and organization, although in some cases special reports can be extremely useful for this type of information as well. Consequently, while secondary sources prove an essential part of the information needed for social assessment, they must always be used in combination with one or more of the other techniques in order to obtain a more complete understanding of the community and its organization.

Some secondary sources can profitably be reviewed before visiting the study area. There are others, usually available only in the community, which are useful to review before any interviews are conducted. Reviewing these materials in advance enables you to be more knowledgeable when talking with people in the community. Advance preparation not only helps build credibility, it also enables you to collect better information by identifying important issues or questions that should be covered in the field work. As the work proceeds in the community, new sources of information will be found. It should be kept in mind that reviewing secondary sources is a continuing activity, not simply advance work.

A useful skill to develop in this work is the ability to scan documents and abstract the pertinent information without getting bogged down in extraneous material. Particularly in areas where extensive resource development has occurred, a great number of lengthy reports have often been prepared. An incredible amount of time can be spent if those reports are read in detail instead of scanned for information relevant to social concerns.

The range of possible secondary sources is wide and varies from site to site. Among the most useful types of secondary sources are the following:

1) Records of public meetings, scoping sessions, public comments, and surface owner consultations, as well as other bureau or agency plans or data sets.

2) County comprehensive plans. Many counties have prepared comprehensive plans that provide valuable background information about the area, the institutional structure, and the expectations and preparations that have been made for the future. These plans are generally available in the local library or from the area planning board.

3) Census data. Data from the most recent U.S. censuses can provide a good indication of the type of change that has occurred in the area over the last several decades. It is useful to obtain any special census data that have been compiled for communities or counties in the study area. These data are generally available in BLM libraries or at libraries serving as federal depositories. In some areas, it will be necessary to interpolate community or study area characteristics from county level data.

4) Environmental impact statements/socioeconomic studies. Many times, state or federal agencies or private companies have prepared environmental impact statements or other socioeconomic studies as part of other proposed activities in the same geographic area. These often provide background information about the area. Local chambers of commerce or economic development authorities may have commissioned other economic studies as well.

5) Local histories. Local authors frequently have written and published a history of the area. These documents can be helpful, but it is important to remember that they have often been written by people with a particular point to make (such as demonstrating the importance of their own family in local history), or by people who need to maintain peace with their neighbors. Some of the more controversial community events or issues may be distorted or downplayed. Local histories can be helpful, but they should be viewed with caution, and important facts or perspectives should be verified from other sources.

6) Maps. Accurate maps of the towns and counties included in the potential study area should be reviewed. These can often be obtained from state highway departments.

7) Lists of public officials. Developing a list of local elected and appointed officials, major agency directors, and their principal functions can prevent unnecessary social errors and enhance understanding of the institutional structure of the area. Usually such lists can be compiled from materials available from

state agencies, the local Chamber of Commerce, or city or county administrative offices. Back issues of these documents can also be useful.

8) Local newspapers. Scanning local newspapers is one good way to identify major stakeholder groups, major controversies, and how the community deals with issues. For example, long-standing or unusual levels of conflict between groups or jurisdictions will usually show up in some form in the local newspaper. Normally it is useful to review two or three weeks' worth of recent newspapers and the most recent annual edition of the newspaper before beginning field work. Local newspapers are usually available at local libraries or at the newspaper office. Newspapers, especially the editorials, can often provide additional information and a different perspective on the important issues and events identified in local histories.

9) Local telephone directories. Current and past issues of the local telephone directory can provide much useful information about the community. It is often useful to obtain directories for the study area communities as a source of information about the economic and organizational stucture and recent changes that have occurred.

Given the wide array of potential secondary sources and the possibility that previous work has been done on the study area by someone else in your office, the first step in this task is to compile the available materials, review them, and prepare a bibliography and note additional studies or reports that should be obtained for review. Further information on the use of secondary sources is provided in Chapter 15.

9.3.4.2 INTERVIEWS

Interviewing is a technique frequently used in social assessment. There are many different kinds of interviews, ranging from the very unstructured to the very structured, such as polling interviews. The approach generally recommended by this guide falls somewhere in between and would probably be called "semi-structured." This means simply that the social assessor prepares an interview guide and initiates the interview with a clear idea of what he or she wants to learn from it. The advantage of this approach is that the interviewer can adapt the wording and sequence of the questions to the kind of information being received

and can pursue information or topics that are raised during the interview even if they were not among those originally specified. However, it is important to make sure that the original topics are covered.

Even though the interviewing style proposed here is relatively informal and adapted to the person being interviewed, with no pretense that the results constitute a statistically valid representation of the population, it is essential that standards of professionalism be observed in how the interview is conducted and how the people to be interviewed are selected. These topics are discussed more completely in Chapter 14. The assessor must avoid biasing the responses by asking questions in a way that clearly implies a "right" answer or by expressing personal views that shape the direction of the conversation. The assessor must also select the people to be interviewed based on reasonable sampling requirements.

9.3.4.3 QUESTIONNAIRES/SURVEYS

Formal survey techniques can be used to obtain statistically valid estimates of the characteristics of a population. They are generally the only way to quantify the distribution of characteristics among the population -- particularly, characteristics such as attitudes, perceptions, and social affiliation for which other sources are usually unavailable. In order to claim validity, rigorous procedures must be followed to eliminate bias and sampling errors. Unless stringent procedures are followed, formal surveys have no greater validity as an indication of population characteristics than a series of interviews. Since surveys are generally less flexible than other interviewing techniques, it is particularly important to clarify objectives and review methods before initiating a survey effort.

Practically speaking, formal surveys which utilize questionnaires or standard questions are tools that are currently not available for regular use by federal employees. The Office of Management and Budget (OMB) must approve all formal questionnaires or surveys any time ten or

more members of the public are involved, and quotas are established for each federal department in terms of the number of public contacts allowed. Unless the project is of considerable significance and there is sufficient time to plan and implement a survey in a professional manner, including obtaining OMB approval, a large-scale survey may not be appropriate. This does not mean that questionnaires or surveys are not useful or that they are not sometimes vital to an assessment, but only that they are not always necessary and that they require planning and attention to technical detail.

Useful survey data may be available from other sources, for example, from local universities, from studies sponsored by a chamber of commerce or economic development corporation, or from studies conducted by other state or federal agencies. While the information is not always available in exactly the form desired, it is often very helpful. One must be cautious, however, in using survey results without careful examination of the procedure which was followed in conducting the survey and compiling the results. If the survey or questionnaire was not properly designed, the results may be badly misleading. Additional guidance about surveys and questionnaires is presented in Chapter 14.

9.3.4.4 WORKSHOPS/PUBLIC MEETINGS

Workshops and public meetings can also be a rich source of information about both community values and the expectations residents have about the impacts of a proposed action. Care must be taken, however, to recognize that information gained in this manner cannot be assumed to be representative of the entire community. Participants of workshops and public meetings may represent only particular stakeholder groups. Public involvement techniques are not addressed in this guide. Those interested might refer to one of the handbooks developed for public involvement. Two good references include the following:

1) U. S. Forest Service 1978
 Inform and Involve Handbook
 U.S. Department of Agriculture

2) James Creighton, The Public Involvement Manual
Denver: U.S. Bureau of Reclamation, 1980.

9.3.4.5 FIELD TRIPS AND OBSERVATION

The principal way to obtain much of the information necessary for the description of the existing environment and the impact assessment is to make one or more field trips to the study area, interviewing local residents and officials and observing how the residents in the community behave toward each other. Much of the important information about how a community is organized and how it functions is most readily available through observation -- how the neighborhoods are laid out and maintained, how local residents greet one another, the condition of public buildings and recreational facilities, and how public meetings are conducted. Consequently, it is important to prepare for your field trips and to make careful records of the observations made while in the community. Particularly if the assessment involves work in a number of communities within a short time period, it is important to develop a method for organizing your observations and perceptions so they don't become confused. Specific guidance for organizing and conducting a field trip is provided in Chapter 13. Based on this review and examination of the information requirements, the best approach for obtaining the necessary primary data -- structured, formal survey, semi-structured survey, or semi-structured interviews -- can be determined. The discussion in Chapter 14 can assist in this decision.

9.3.5 Develop a Detailed Research Plan and Schedule

The purpose of developing a detailed work plan is to lay out the tasks required to obtain the necessary information so that they can be organized in a logical and efficient manner.

As a general rule, it is preferable to review and analyze information from available secondary sources before developing the specific instruments to be used in the field. This avoids both revision of the instruments and wasted interview time. Since it is likely that the

economic/demographic and facilities/services analysts are gathering secondary data and planning field trips on about the same schedule, it is important to make sure that the efforts are coordinated.

Although other approaches could be used, it is recommended that the social organization model and the summary of information requirements developed previously be used to organize the data collection and field work. The information on the proposed action's potential to cause change in the study area communities should be reviewed with the economist to ensure that it represents the most current thinking.

Following review of available secondary sources and discussions with the other members of the assessment team to coordinate the contacts made with community residents, the field instruments can be designed to ensure collection of all pertinent material, and the field trips can be scheduled. It is recommended that the field trips be kept brief, with adequate office time scheduled to write up and review the information gathered in the field. For large study areas, it is preferable to schedule several shorter field trips rather than one long trip, if possible.

When preparing the work plan and schedule, allow a generous estimate for the time it will take to analyze the information and write up the report. Extensive information will be gathered; much of it will be wasted if adequate time is not allocated to the analysis. To ensure careful and uninhibited analysis, it is recommended that a draft working paper be prepared prior to any of the final reports that will be formally submitted.

9.3.6 Implement the Research

Once a satisfactory work plan has been developed which allows adequate pacing of the effort, the research plan can be implemented. Throughout the research process, it is important to continually ensure that a focus on information pertinent to the assessment is maintained while at the same time remaining alert for any information that would indicate that revisions in the information specifications are warranted.

Obviously, information that would significantly influence the forecasts of the direct inputs from the proposed action or for the baseline should be noted, but it is vital not to be enticed into collecting extensive data on topics that are either extraneous to the assessent or that are excessively detailed.

9.4 Documenting Your Work: Preparing the Description of the Existing Environment

9.4.1 Introduction

Because the description of the existing environment provides the key information necessary for assessing and evaluating the effects of the proposed action, it is important to approach the information you have gathered in an analytic fashion.

For this reason, it is recommended that you prepare an inventory of all the information about the existing environment that has been gathered. An inventory organizes the data that have been collected compactly and concisely so that it can be used. The inventory can be in the form of brief summaries (a sentence or two) organized into relevant categories. One possible schema would be to inventory data about the existing government according to the major topics in the social organization model -- community resources, social organization, well-being indicators -- and to develop inputs summaries describing the inputs for each of the alternatives being considered. For the with-action alternatives (total), it is useful to describe inputs due to the baseline and the proposed action separately. A few examples of what is intended for each of these areas are shown below.

1) Community Resources

 History. The community has not changed to any degree, demographically or economically, for the past two decades. It has had no experience with development.

 Attitudes. Most of the residents of the community favor the project (program) because they see it as a means for economic revival of the town. Those opposed to the project are well organized but come from a limited population, while those who favor the project are unorganized and from a diverse population.

2) Social Organization

Distribution of Resources/Power. Most of the youth leave the community after graduating from high school in order to further their education or get jobs. Those who stay mostly go into ranching. Ranchers are the elite in the community. Land is the principal basis of wealth and the principal criterion for status.

Coordination and Cooperation. The town and county have not demonstrated the ability to coordinate their efforts to resolve common problems. There is continuing dispute over police/sheriff jurisdictions and inability to collaborate on a decision about the jail.

The few newcomers to town remain generally isolated; no effort has been made to coordinate their entrance into community affairs.

In general, leadership has not been able or willing to take a decisive role in coordinating community positions or efforts.

Personal Interaction. Almost everything gets done on an informal basis. The residents like it that way; they don't like any type of "red tape" or formality in conducting the business of everyday life. Most things get done on a slow or "as convenient" time schedule.

3. Indicators of Well-being. None of the behavioral indicators were noted as unusual, although alcohol abuse is a recognized problem.

Per capita income levels are low for the state, and community resources are limited. Most family incomes are clustered at the low end, with the usual small-town concentrations of wealth -- doctor, lawyer, banker, and a few wealthy ranchers.

Generally people report feeling that the community is economically depressed but has good personal relationships and lifestyle.

After the inventory has been completed, the information can be analyzed and synthesized into a draft working paper.

Based on the analysis performed in the development of the working paper, you will be in a position to target your formal reports specifically to the needs of the particular assessment, summarizing the information if only a brief description is necessary. For this discussion, it is assumed that the assessment requires the development of both a detailed technical report and a shorter summary that will be included in an environmental report or environmental impact statement. As was stressed in Chapter 6, it is important to understand and keep firmly

in mind the purpose and requirements of the assessment and to prepare your reports accordingly.

9.4.2 Analysis of the Data and Preparation of a Draft Working Paper

Because the information has been obtained utilizing the social organization model, it is recommended that this model be used to organize the analysis and the draft working paper. The purpose of the draft working paper is (1) to provide a mechanism for working through the information you have obtained and (2) to enable you to develop a better understanding of your information. Preparing a working paper will also allow you to explore your information more thoroughly and to candidly develop your analysis about community leadership, distribution of resources, and community coordination.

Analyzing this complex and abstract data will be hard work. It is inevitable that there will be contradictions and gaps in the information and that it will take several passes through the material before your conclusions become clear. The draft working paper is intended to encourage you to struggle with the data, to check information from different sources, and to try out different analyses. As mentioned before, guidance on the use of secondary data sources and analysis of interview data is provided in Chapter 15.

Once you have worked through the draft working paper and are satisfied that you have a good understanding of the major organizational characteristics of the communities and/or the area residents, including their attitudes about the proposed action and changes of the type that may result if the proposed action is taken, you will be in a good position to assess the consequences of the proposed action and to prepare a formal report describing the existing characteristics of study area communities.

9.4.3 Preparation of the Existing Environment Chapter of the Technical Report

The purpose of a technical report is to provide back-up material for the environmental report or the environmental impact statement. Before

you start to prepare material for the technical report, it is worthwhile to make sure that you clearly understand the purpose of the document, the intended audience, the current outline of the document, and the format specifications.

Once you have established the procedures and format for your section of the existing environment chapter, you should check with the economist and facilities/services analyst to review what they will be including in their section of the report. It is very likely that some of the material that you have described in detail, especially the description of community resources and indicators of well-being, will overlap substantially with their reports. It is necessary to reach an agreement about who will discuss what so that the technical report is neither redundant nor missing pertinent information.

Once this has been done, you should be in a position to prepare your section of the technical report quite quickly, since it will be based on the analysis you developed in the draft working paper. It is important to remember that the description of the existing environment presented in both the technical report and the final environmental statement are to be analytic, not exhaustingly descriptive. Report the information that matters in your assessment of the proposed action, but don't include a lot of background or explanatory material.

9.4.4 Preparation of the Existing Environment Section of the Environmental Impact Statement

The purpose of the environmental impact statement is to summarize and highlight the information that is pertinent to the decision about the proposed action. You will be given stringent specifications about length and format that will require you to synthesize the most important aspects of the description of the existing environment into a very brief and succinct statement upon which the conclusions reached in the assessment are based.

Outline of Chapter 9: Description of the Existing Environment

9.1 Introduction

9.2 How to Determine the Important Characteristics of the Existing Environment: Use of the Social Organization Model

- 9.2.1 The Purpose of the Description of the Existing Environment
- 9.2.2 The Social Organization Model
 - 9.2.2.1 Community Resources
 - 9.2.2.2.1 Introduction
 - 9.2.2.2.2 Diversity/complexity
 - 9.2.2.2.3 Outside Linkages
 - 9.2.2.2.4 Distribution of Resources/Power
 - 9.2.2.2.5 Coordination and Cooperation
 - 9.2.2.2.6 Personal Interaction
 - 9.2.2.2 Social Organization Processess
 - 9.2.2.3 Indicators of Well-Being
 - 9.2.2.3.1 Introduction
 - 9.2.2.3.2 Rates of Behavior

9.3 How to Obtain the Information

9.4 How to Present the Information and Document the Process

10. Forecasting Baseline, Direct Project, and Total Inputs

10. Forecasting Baseline, Direct Project, and Total Inputs

10.1 Introduction

Two basic sets of information are needed to forecast the social effects of a proposed action: (1) a description of the existing environment and (2) forecasts of the baseline, direct project, and total (baseline plus direct project) inputs. The principal direct project inputs for resource-based decisions tend to be economic and demographic -- it is primarily through people, jobs, income, and resource changes that the proposed action interacts with the existing environment to produce social change. Forecasting these inputs is generally the responsibility of an economist. Social assessment analyzes how these inputs will interact with the community. Consequently, the social assessor often obtains information about characteristics of the study area communities that could affect these forecasts and make them more realistic.

This chapter discusses how forecasting baseline, direct project, and total (baseline plus direct project) inputs fits into the overall social assessment process and then discusses the major factors influencing the forecasts of the six types of inputs. It should be emphasized that some of this information may be substantially more detailed than is necessary for the particular assessment you are conducting. If it is not appropriate or useful, it should be disregarded.

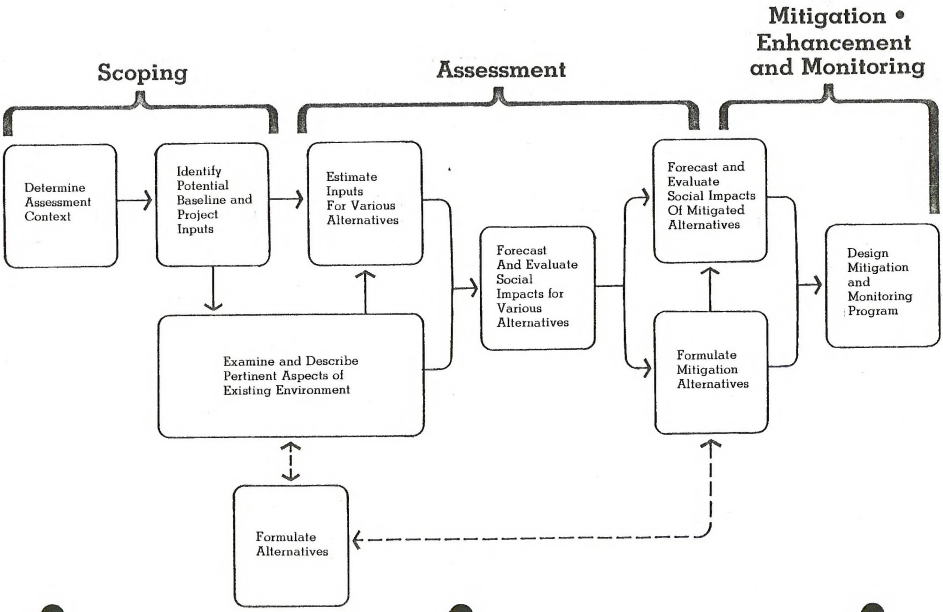
10.2 Purpose and Role in the Assessment Process

As shown in Figure 10-1, this step of the assessment process is placed between the description of the existing environment and the forecast and evaluation of the social effects. Its position between these two major steps serves two functions.

First, it allows the focusing and screening approach utilized in chapters 7 and 9 to be applied to the forecasting of baseline and direct project inputs. Placing this step after the description of the existing

FIGURE 10-1

The Social Assessment Process



environment allows information about the study area communities to be used to focus attention on those direct project inputs which may cause important social effects, to inform decisions about the precision needed in the forecasts, and to inform the forecasts themselves. Since some communities are more sensitive to particular inputs than others, information about the existing environment provides a basis for determining whether or not the communities and residents in the study area would be sensitive to small inputs. If they would be, precise estimates might be called for. If not, more gross estimates would probably suffice. The same distinction may hold with regard to the assessment effort as a whole. If precise estimates are not available or necessary for the level of detail called for by the assessment, they should not be prepared.

Second, it allows the forecasting of baseline, direct project, and total inputs to serve as preparation for the forecasting and evaluation of social effects. Information about the existing environment can identify particular constraints (lack of housing, zoning restrictions) or resources (a particularly large pool of available workers) that can alter the anticipated inputs, possibly by modification of the proposed action. Working through the forecasts of baseline and direct project inputs in the context of the specific study area can clarify the characteristics of the inputs as well as the relationship these inputs have with community characteristics.

As noted previously, most responsibility for preparing the forecasts of baseline, direct project, and total changes in people, jobs, income, resources, and public safety lies, in a interdisciplinary setting, with other members of the assessment team. However, description of these changes is so critical to the assessment of social impacts that it is wise to make sure that responsibilities are understood, that a common set of expectations about the timing and format of the forecasts has been established, and that the knowledge of other team members is utilized. Coordinating schedules in a way that provides the social assessment with forecasts of inputs when they are needed can be a fairly serious problem, since the social assessment uses as input what the

other components generate as output. This is one reason that it is important to determine how precise the estimates need to be. Order of magnitude estimates can generally be obtained early in the process, either on your own or through discussions with the responsible parties. Precise estimates are often more difficult to obtain at this stage.

10.3 Forecasting Baseline, Direct Project, and Total Inputs

10.3.1 Introduction

This section discusses the six types of inputs and why they are important to social assessment. Some of the factors known to influence the inputs and to clarify their likely effects on the community are identified. The purpose of the discussion provided in this chapter is to alert the reader to the types of relationships or factors that affect how projects interact with communities and to promote a broader understanding of these mechanisms. With this understanding the user of the guide is in a better position to discuss the forecasts with the other team members, to anticipate the types of consequences that different projects will have, and to formulate and assess mitigative strategies.

10.3.2 People

Changes in the number and characteristics of the people in a community can affect every aspect of the community's social organization. To understand what is likely to occur, some estimate must be made of how many new people with what characteristics will come into the community and how long they will stay.

Newcomers who enter a community to take project-related jobs constitute the major force for social change introduced by many resource-based actions. Consequently, the most critical baseline and direct project inputs to be estimated are often the number and characteristics of the people who will be introduced into the community. As mentioned above, an increase or decrease in population has the potential to affect all aspects of community organization. If the population influx is large compared to the existing population, the attitudinal and behavioral characteristics of the newcomers can dominate the community. Large

increases in population, particularly if they are temporary, can disrupt social organization processes, decrease the availability of resources, and adversely affect community well-being.

Estimates of population change for most resource-based actions are closely tied to the estimates of change in employment. They involve a number of complex relationships between job characteristics (such as wage rates, occupational characteristics, shift schedules and overtime, duration of the project), community characteristics (for example, location, amenities such as schools, shopping, and housing, attitudes toward newcomers), and the policies of the company or agency implementing the action (provision of worker housing, training, employment of women). Although it is not clear how applicable the experience of the 1970s will be in the future, considerable secondary data exist on the demographic characteristics of workers employed on large-scale energy projects. On large-scale projects, detailed community-specific population forecasts are usually prepared. These provide age- and sex-specific estimates for each year of the study period. On smaller projects or those which do not involve large changes in population, the estimates are likely to be less detailed.

For study area communities sensitive to the level of population likely to be introduced by the proposed action, discussions with the economic/demographic analyst and the facilities/services analyst and a review of some of the secondary materials describing the characteristics and consequences of these types of population change are probably warranted. Since a large portion of the forecast of social change depends upon the number and characteristics of the newcomers relative to the longtime residents, it is best to understand these relationships as well as possible and to pay close attention to the forecasts.

10.3.3 Jobs/Occupations

Changes in jobs and occupations are often one of the major consequences of large scale resource projects. Specification of the changes that will occur in the jobs and occupations in a community is needed to

answer questions about how the occupational characteristics and distributional processes in the community will be affected and what proportion of the change will be due to the proposed action.

10.3.3.1 THE NUMBER AND TYPE OF JOBS THAT WILL BE CREATED (OR LOST) BY CHANGES IN THE BASELINE OR THE PROPOSED ACTION

If the proposed action will be the principal source of change in jobs/occupations over the study period, most of the necessary information about the number and type of jobs can be obtained from a description of the occupational breakdown of the work force of the proposed action. This description can generally be obtained from the company or agency implementing the action or from such descriptions for other similar projects.

If baseline conditions or the proposed action will result in a substantial change in other (induced) jobs as well, specification of the characteristics of these jobs may also be important. This is more difficult since it requires analysis of economic/demographic relationships. Forecasts of these additional jobs are generally presented in terms of industry rather than occupational distribution. Since the occupational implications of the employment changes may not be evident from these forecasts, it may be helpful to discuss these forecasts with the economist to determine what types of jobs are being created or lost.

As with most of the information used in social assessment, order of magnitude and comparative estimates regarding occupational changes are generally adequate, although for large-scale projects data are generally developed as an annual series for the baseline, project, and total conditions, with the employment distributed among the study area communities. The most important things to note about the forecast changes are (1) peak levels, (2) long-term "permanent" levels, and (3) trends (whether the changes are rapid or slow, constant or up and down), since these attributes can affect both resource availability, social organization processes, and the overall ability and willingness of the community to respond.

10.3.3.2 THE NUMBER AND TYPE OF JOBS THAT WILL BE OBTAINED BY LONGTIME RESIDENTS VS. THE NUMBER THAT WILL BE OBTAINED BY NEWCOMERS

The economist/demographer will generally carry out the analysis of the distribution of jobs for the baseline, project, and total conditions based on consideration of the factors listed below. Although you will probably not be responsible for this analysis, you may have obtained information about the community that could help. The pertinent information includes the following:

1) The number and type of jobs that will be available
2) The skill/experience requirements for these jobs
3) The number of longtime residents with the required skills and experience
4) The number of longtime residents who will want these jobs
5) The attitude of the company or agency implementing the action toward local hiring and on-the-job training
6) The distribution of union and nonunion jobs (which determines who controls the hiring policy and where hiring decisions will be made)
7) The attractiveness of these jobs to people from outside the community (generally determined by job and wage characteristics)
8) The availability of labor from outside

10.3.3.3 THE DISTRIBUTION OF JOBS AMONG COMMUNITY RESIDENTS

When new jobs are made available in a community, there is a potential for change in the distributional processes and in the diversity/complexity of economic and social life. Since occupational characteristics have a strong influence on attitudes and lifestyles, changes in livelihood from shifts in the types of jobs held by longtime residents can have widespread effects on the other social organization processes as well.

Examining who in the community would get which jobs is part of the analysis needed to determine how many jobs will be obtained by longtime residents and how many will be obtained by newcomers, information which is critical to forecasting the population changes that would occur. Participation in this analysis can clarify some important aspects of the distributional processes of the existing environment.

Quite obviously, jobs requiring specific skills can be obtained only by those who either already have the skills or can acquire them through training or experience. Information about the occupational and educational characteristics of the different community groups is useful for determining how many and which community members might qualify for the new jobs.

Qualifications are only part of the equation, however. Workers can obtain jobs only if they are willing to apply for them. Available evidence indicates that adult longtime residents who are already employed tend not to leave existing jobs for short-term construction phase jobs, although they may take a second job or occasional short-term work if their full-time job schedule can accommodate it. If there have been major construction projects in the area in the past, longtime residents may have developed the skills to effectively compete for these jobs. Local youths are likely to be available and interested in construction jobs, if hiring policies and training opportunities permit entry level workers. The number of women obtaining construction jobs is typically small, although it has been increasing. The number of community residents willing to apply for action-related jobs can be affected by the availability of other employment opportunities and by the community's attitude toward the project. If the community is strongly opposed to the project, social pressure may be applied to community members not to work on it.

An increase in the employment base of the community often results in increased opportunities in service sector jobs. These are often filled by women, many of whom may be working for the first time or the first time since child-bearing. Although these jobs tend to be low-paying in comparison to the "direct" project-related jobs, they may offer employment opportunities that were previously unavailable to women. A large increase in the proportion or number of working women can affect the distribution of income among families and create changes in service demands and patterns of personal interaction. The availability of support services (such as child care) can have an important effect on

the willingness and ability of women to compete for jobs. The factors most important to consider when estimating who will get which jobs include:

1) Types of jobs created
2) Expected duration of the jobs
3) The community's skill/experience base from previous projects
4) Older workers' willingness to leave established jobs
5) Young workers' ability to obtain entry-level jobs or training
6) Traditional distribution of jobs between males and females
7) Community attitudes towards the project
8) Other employment opportunities available to residents
9) Support facilities for working parents

Careful examination of the forecast baseline conditions may be useful in determining how the residents are likely to respond to the project-related jobs and what the jobs will mean to community residents. Under baseline conditions in many of the rural areas of the West, people may leave their communities because no jobs are available. With the proposed action (or the prospect of the proposed action), some may choose to remain or to return. Under these circumstances, new jobs can create entirely different social effects than they would in a community which already has ample jobs and where almost all new jobs would have to be filled by newcomers.

If the number of jobs being introduced into a community has the potential for large social effects, it will be important to develop detailed baseline and with-action scenarios. If the number of jobs to be produced by a project is not a significant source of social change, such detailed estimates are generally unnecessary.

If a baseline forecast is to be prepared, it will usually be the economist's responsibility. If no other major projects are anticipated, future employment characteristics will generally be estimated by more simple methods, such as trend analysis. It should be emphasized that the purpose of this analysis is to determine whether there are groups in

the community which will benefit in a particular way from the proposed action and to provide a basis for understanding the mechanisms affecting the distribution of resources. Thinking through the information you have about these factors can clarify the processes by which resources, particularly access to jobs, are distributed within the community and can help you make a preliminary estimate of effects.

10.3.4 Income

Change in the level of income often constitutes one of the major project-related effects. Changes in income levels, however, can generate conflict in communities if they alter existing distributional patterns. Specification of the changes that will occur in the level of income and an understanding of the potential for distributional effects can therefore be important for the social assessment. For most types of proposed actions there are three major mechanisms by which income levels and distribution can be changed. These are through (1) the wages paid to workers in jobs created by the proposed action, (2) increased business activity and windfall profits, and (3) increased or decreased cost for use of a resource (for example, modification of grazing regulations).

10.3.4.1 WAGES PAID TO WORKERS IN JOBS CREATED BY THE PROJECT OR BY CHANGE IN BASELINE CONDITIONS

If the proposed action or change in baseline conditions introduces a large number of new jobs into a community, it is generally worthwhile to examine what this will do to wage levels and, consequently, to the distribution of income from wages. These issues are relatively easy to address in aggregate by comparing existing wage rates with the wage rates forecast for the baseline, direct project, and with-project (total) conditions. Substantial changes may occur if the number of jobs with atypical (high or low) wage rates is relatively large. The distributional question is considerably more difficult and is tied directly to the distribution of jobs (discussed in Section 10.3.2).

Large wage differentials between existing and new jobs can have several effects that are important to the social analysis. In many cases, the

skill requirements for some of these high-paying jobs are such that local residents are likely to obtain at least some of them. The availability of higher-paying jobs can create competition for labor. This can make employers offering lower-paying jobs either unable to obtain or keep employees or force them to increase their wage rates. Either consequence can have important distributional effects. If severe, it can create serious staffing problems for local government, local commercial establishments, and possibly farmers and ranchers.

From the workers' perspective, the effects of a high wage differential can be positive (if the wages paid in these areas increase) or negative (if they don't increase, but the higher wages in other sectors create local inflation). Consequently, if the assessment is dealing with large changes in jobs and income, it might be helpful to discuss these possibilities with the economist.

10.3.4.2 INCOME FROM INCREASED BUSINESS ACTIVITY AND WINDFALL PROFITS

Another major way that the income levels and distribution in a community are affected is through an increase in business activity or inflation in the value of goods/services due to increased demand. If the number of people introduced in the community is small (see Section 10.3.2) and the project will not make major purchases locally, this is unlikely to be an important factor. If the population increase is large relative to the existing population (a greater than 10 percent increase) and the wage differentials are high, it may be important because it can affect the distribution of resources and, potentially, the community's ability to coordinate response by creating conflicts of interest and changes in the status relationships among residents.

The extent to which wages are spent in a community depends largely on what goods are available there and what alternative sources are available. Consequently, pressure from excess demand due to worker purchases is likely to be greater in a small, isolated town than in a

similar-sized town near a regional center. High levels of local spending can have both positive and negative effects, often on different groups within the community. If local supply is not adequate to meet demand, prices are likely to rise. This occurs most frequently for high demand goods and services that are not easily transportable and are more expensive (such as land, housing, durable household goods) and less frequently for goods whose supply can easily be increased (such as groceries). Local price inflation benefits the sellers of the goods and hurts the buyers. Severe local inflation can create difficulties for those in low wage jobs and on fixed incomes, although their utilization of the items with inflated prices needs to be evaluated to determine the extent of this effect.

Because it usually benefits only the few, inflation of prices is generally considered an adverse effect. It can affect local residents' perceptions of the quality and relative importance of personal interactions. Especially in smaller towns with highly informal personal interaction patterns, businesses which inflate prices beyond what seems fair tend to be seen as greedy. If this is perceived as a widespread occurrence, residents may feel there has been an undesirable change in established patterns of behavior and that too much emphasis is being placed on economic rather than personal considerations.

The ability of informal social controls to impose sanctions against price inflation may influence the extent of price increases and windfall profits. Local residents' attitudes toward the project and the newcomers may also have an effect. Prices may be raised to prevent growth and the establishment of new business, or they may be raised to indicate protest and resentment of the activity or newcomers. These types of response affect not only "real" income levels, but also the amount of increase in business and population and the personal interaction processes in the community. Changes in these factors may in turn affect the behavior of newcomers.

Increased local demand can also result in the expansion of existing businesses or the establishment of new ones. Establishment of busi-

nesses by outsiders can affect the organizational/regulatory context of the community, and overall business response can substantially increase the number of new people who move into the town. Two factors that have been identified as critical to the ability and willingness of local businesses to expand are (1) availability of financing and (2) the uncertainty of demand. Particularly if the proposed action involves a large, temporary peak in the number of workers (which is typical of power plant or synfuels construction) or if the timing of the proposed action is uncertain because of fluctuating demand or potential regulatory difficulties, businesses may be unwilling to expand or unable to obtain financing either because of the uncertainty of the long-term prospects or because financing capabilities are strained by the expansion and local banks are unable to lend. If local businesses are unable to expand, the number of outside companies entering the community may increase, changing the outside linkages and distribution processes in the community.

In many small towns, expansion of commercial facilities is evaluated positively by most residents. Therefore, estimation of the effects of increased purchasing power (from increased population and/or increased income levels) on the number of establishments can be important in evaluating residents' perceptions of change in the community.

10.3.4.3 INCREASED OR DECREASED COST OF RESOURCE USE [1]

If the proposed action involves modification of the cost or availability of resources that contribute to the income of area residents (such as federal land for grazing, subsidized irrigation water, etc.), it can cause real or anticipated effects on the income and well-being of at least one stakeholder group. In these cases, the principal social effects of the proposed action may occur as a direct interaction between the proposed actions income effects and the well-being of

[1]Income effects of this type can also be addressed as an indirect effect of change in the cost and availability of resources, as discussed in Section 10.3.5.

individuals/families in the study area, with the effects on study area communities of minor importance.

It is generally the responsibility of the resource management specialist or economist to calculate the effects of the proposed action's change in resource availability or cost on family/farm/business income (and to estimate the amount and type of income and employment generated or lost as a result). It is usually the responsibility of the social assessor to determine the significance of these effects for the study area residents. This task involves determining whether or not the income changes will be sufficient to: (1) affect the livelihood pattern of the area, (2) affect the social organization of the area, and (3) affect the well-being of area residents. When dealing with these types of potential effects, it is important to be sensitive to the consequences of any uncertainties about actual effects from the perspective of the affected population. In many cases, the position of the potentially affected population relative to those proposing the modification/project is such that it is to the advantage of the potentially affected population to be highly risk averse -- from their perspective, their potential for loss due to the uncertainties is substantially higher than their potential for gain. When this perspective is combined with the political realities of an assessment process, determination of attitudes, perceptions, and positions can be extremely difficult and very important.

Analysis of the distributional effects of a proposed action is not routinely addressed by the economist; therefore, if they appear important, it may be your responsibility. Since many of the questions involve economic relationships, an economic perspective may be helpful, so collaboration with the economist may be beneficial. Similarly, unless you are experienced in the area, it may also be worthwhile to get help determining the types of businesses and organizations likely to be introduced into or driven out of the community or study area by changes that are forecast for income and employment, if that aspect appears to warrant attention. Information about community or stakeholder group

opposition to the proposed action, expressions of inability to plan or respond because of project uncertainties or lack of financing, or indications that community leadership is likely to take an aggressive role in coordinating businesses' response can be useful in refining estimates of income effects.

10.3.5 Resources

A major feature of some projects is modification of the resources available to the study area communities. In other types of proposed actions, resource changes are relatively small. The types of resources included in this input category range from public lands and water to recreational facilities and taxes. The major question being asked is how the proposed action will change the resources that are available to the community and the individuals in the study area.

The focus of the analysis will vary greatly depending upon the type of proposed action being assessed. Those whose principal action involves modification of a resource that is used locally (for example, grazing permits, wilderness, water) will require a substantially different analysis than those whose principal action does not. For most energy development decisions, the resource change with the greatest potential for local social effects is the change in local tax revenues. For decisions involving renewable resources (timber, grazing, wildlife, wilderness), the principal source of effect is change in the cost or availability of the resource itself.

Quantification of the change in resources will generally be the responsibility of another team member. For example, the economic/demographic or facilities/services analyst is generally responsible for determining the change in taxes and for forecasting baseline, with-action, and total revenues if they are needed. Detailed analysis of changes in tax revenues is generally most important where (1) the project is imminent, (2) both the revenue base and the demands for services

will change, and (3) there is a possibility that the community's ability to respond will be affected. If you are responsible for this aspect of the assessment, guidance is provided in Appendix B.

Two aspects -- jurisdictional distribution and timing -- are frequently among the largest resource issues, since they determine whether adequate resources will be available to meet demand. For this reason forecasts should address both the jurisdictional (county, town, school district) and temporal distribution of resource change. In these forecasts, attention must be given to the ability of area residents and/or local or state governments to alter resource availability and cost. The local jurisdictions in the study area, for example, may have considerable flexibility in the type and magnitude of taxes that can be locally imposed.

With large-scale energy development, difficulties are frequently created because the jurisdictional distribution of tax revenues does not correspond with the distribution of demand for service. This is most likely to occur between towns and counties and between school districts. Some communities have addressed this problem by coordinating their resources and service provision through the formation of joint power boards or other collaborative mechanisms. Specification and interpretation of the baseline and with-action revenue forecasts can be enhanced by application of information about the community's approach to planning and controlling the effects of the proposed action and about the ability of local government jurisdictions to coordinate and cooperate.

The characteristics of the company or agency implementing the action can have a substantial effect on the change in resources and particularly on the manner in which the change occurs. Transfer of resources by application of the right of eminent domain or by changes in legislation, for example, often result in conflict and long-term resentment. Tax revenues can be tremendously affected by the characteristics and policies of the company or agency implementing the action. Public agencies

or companies may be tax exempt and thus pay no local taxes on their properties or purchases, although they may have the ability and willingness to make payments in lieu of taxes.

Since the timing of revenues relative to the timing of demand is critical to the ability of local jurisdictions and residents to respond, considerable attention is often given to development of schedules. Some communities and companies implementing action have negotiated prepayment of taxes, special contributions to the jurisdictions (such as firefighting equipment), the provision of company-sponsored facilities for their workers (such as worker housing with its own water and sewer systems), or long-term, phased implementation of new regulations. Although these agreements tend to be viewed as mitigation strategies rather than as part of the proposed action, it may become more common to have such resource provisions incorporated as part of the original project design. Currently, the extent of this type of resource provision depends largely upon the initiative taken by the local government and area residents and upon the attitudes and experience of the implementing company or agency. The ability of these entities to coordinate their efforts can make a major difference in the social consequences of a project. Information about the potential relationship between the community, stakeholder groups, and the company or agency implementing the action can therefore be very important to the assessment. Indeed, this factor can be so important that lack of knowledge about the likely behavior of the implementor introduces a substantial degree of uncertainty into the assessment process that should be noted.

10.3.6 Organizational and Regulatory Changes

In some cases, implementation of the proposed action can result in a drastic change in the number and type of organizations active in the community. In others, the proposed action itself may be a policy or regulation which affects the ability of the local governments or area residents to control their resources. Changes in the number and type of organizations and in the regulations under which communities and their

residents must operate can have consequences for the diversity/complexity, distribution of resources, and interpersonal interactions in a community. These consequences can be of sufficient magnitude to affect perceptions of well-being. Energy development projects, for example, are most likely to cause changes through the introduction of: (1) new federal or state agencies or modifications in the visibility of their presence, (2) new businesses (including national energy companies, chain stores, and franchises), and (3) voluntary organizations such as churches, fraternal organizations, and unions.

Regulations governing communities and their residents change through a similar process. Regulations can be imposed (or changed) as a direct consequence of the proposed action. As the situation in the community changes (or is anticipated to change), regulatory changes are likely to occur. For example, many small communities undergoing rapid growth experience pressure to implement or enforce planning, zoning, and land use regulations even when there may be a strong aversion to loss of personal control over private property. The chance that this pressure will result in regulatory change appears to depend upon a number of community-specific factors such as state pressure, the magnitude of growth, the coordinative ability of local leadership, and the distributional effects of the regulations. Unless the specific purpose of the assessment is to identify the effects of policy changes, it is likely that the specification of inputs regarding regulatory changes will primarily involve identifying general regulations associated with the type of development for the particular state involved and looking at the types of regulatory changes that have occurred in other communities under similar circumstances. It is probably also worthwhile to review the policies of the state government.

10.3.7 Changes That Would Affect Health and Public Safety

For some assessments, a major purpose or desired outcome of the proposed action is to reduce risk to health and public safety. Anticipated health and safety effects (such as those resulting from a dam) are generally forecast specifically by economists or other specialists. The responsibility for quantifying these effects would rarely fall to the

social assessor. Changes in public health and safety are important inputs because they can affect both the objective measures and subjective perceptions of community well-being. Unless there are particular factors in the community that would affect estimation of these effects (such as a cultural or social aversion to the use of a facility), the specialist's estimates can generally be used without extensive evaluation.

10.4 Documenting the Results

When baseline, with-action, and total specifications for each of these types of inputs (for each area or impacted community in the study area) have been made, it can be useful to summarize the results into an inventory, making a brief notation about the principal factors that influenced the estimates. This type of inventory can facilitate revising your estimates in case changes occur in the baseline conditions or the description of the proposed action, and it can also be used when forecasting the social effects of the various alternatives. An example format for such an inventory is shown in Figure 10-2.

For most large-scale energy development projects, the single most critical project input is the total number of people. It is often helpful to use population as a proxy for change in the baseline and project inputs and to develop graphs similar to those shown in Figure 10-3, identifying the year of peak temporary population, the year in which long term permanent population levels are reached, and the magnitude and duration of the "temporary excess" population. These simple graphs can be very useful in forecasting the level of impacts that are likely to occur in different communities and for comparing alternatives.

FIGURE 10-2

Inventory of Inputs

DATE: _____

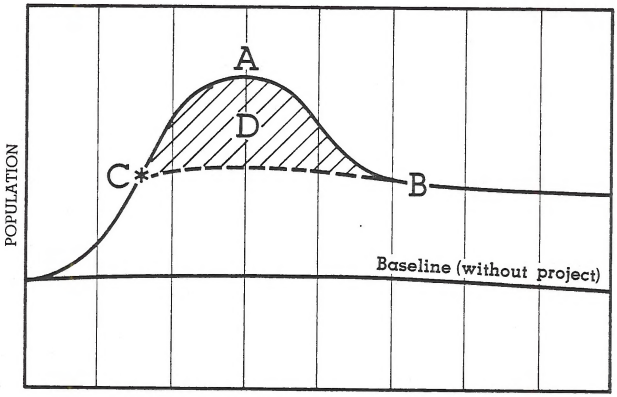
COMMUNITY/AREA: _____

ALTERNATIVE: _____

		BASELINE	PROPOSED ACTION	TOTAL WITH-ACTION	COMMENTS
People	PEAK				
	PERMANENT				
Jobs	PEAK				
	PERMANET				
Income	PEAK				
	PERMANENT				
Resources	PEAK				
	PERMANENT				
Organization/ Regulation Changes	PEAK				
	PERMANENT				
Health and Public Safety	PEAK				
	PERMANENT				
Other					

FIGURE 10-3

Summary of Population Change



A Peak Temporary Population (with project)

B Long-term Permanent Population (with project)

C Point at which Population Reaches Long-term Permanent Size

D Temporary Excess Population

11. Forecasting and Evaluating the Social Effects

11. Forecasting and Evaluating the Social Effects

11.1 Introduction

This chapter describes how to forecast and evaluate the probable social effects of proposed actions. This is a difficult part of social assessment because it requires the assessor to make judgments for which there are no hard and fast guidelines.

A forecast is a statement of likelihood about the future of a particular place for a particular time. It usually does not attempt to define exactly what will occur or assign probabilities to the occurrence of a specific event. Forecasting is a risky business because social life is too complex for the forecaster to possess all the information needed to make a precise and specific prediction. Therefore, a forecast is a reasoned, logical judgment. This should be kept in mind throughout the assessment process.

Forecasting social impacts is difficult for several reasons. First, it deals with subjects who can alter their behavior based on real or perceived changes in the environment. Second, enough really isn't known about the experience of other affected communities to provide a firm base of information. Evidence from past experience is important in making forecasts, but the information available isn't sufficient to allow forecasts to be made with certainty. Third, events don't always occur as planned or anticipated. Communities may decide to engage in planning instead of "riding it out." Opposition groups may decide not to actively object. The company or agency implementing the project may increase its work force or help finance part of the mitigation measures.

Evaluation is the process by which meaning is attached to forecasted social changes. Again, this is a difficult task. The purpose is to use analytic skills to describe how the affected parties will interpret the forecasted social effects. This tension between objective changes and

the meaning of such changes has been discussed throughout the guide. Various data sources for measuring meaning or perception have been described; that is, interviews, questionnaires, and secondary sources. But in the end, it is your responsibility as assessor to describe to the decision-makers as accurately as possible the meaning different impacts will have for different stakeholders.

Forecasting and evaluating the social impacts that will result from a proposed action is the goal of the social assessment. Without the forecast, the process would be only a data gathering exercise, not an impact assessment. Indeed, the forecast is the social assessment, since it determines and describes the most likely social impacts and how they will be interpreted. It is the cumulative result of all the previous work. So, despite the problems and the difficulty, it is a task that is critical to the successful completion of your work. The information presented in this chapter is designed to help you plan and organize your effort and to guide you through the forecasting process.

11.2 How to Forecast and Evaluate Social Impacts

11.2.1 Clarify the Objectives

The forecast and evaluation is the goal of social assessment, but the goal of social assessment is to provide the decision-maker with the information he or she needs to make an informed decision. The decision-maker will feel confident in using the forecast if the methods and analysis that have been employed are sound and well documented. As you prepare to make the forecasts, you should take time to reflect upon your objectivity. The forecast and evaluation should be derived from the data and the analysis -- from what the data demonstrate, not what you expected or wish the data to show. A forecast based on personal preferences can be easily detected and will not be useful to decision-makers. Now is a good time to check your biases and guard against them while making the forecast and evaluating the effects.

11.2.2 Clarify the Approach

Before initiating the forecasting process, two aspects of the approach need to be clarified. First, the purpose and detail necessary for the assessment need to be reviewed. In some cases, the principal purpose of the impact forecast is to determine the general magnitude and type of social changes that will occur in order to compare a variety of alternatives. In this case, the desired level of detail in the forecasts and discussion of impacts is generally low. In other cases, the principal purpose of the assessment is to delineate the social consequences of a particular action in sufficient detail to facilitate enhancement or mitigation. Here, considerably more attention to detail is required. Obviously, it is important to determine which approach is appropriate for the assessment being conducted.

The second aspect of the forecasting approach that needs clarification is how the comparisons between the with-project and the baseline conditions are to be made. Two approaches are commonly employed. Since they can yield somewhat different results and involve somewhat different presentation, it is important to understand which is to be used in the assessment being completed. The first comparison follows the sequence:

1) Forecast future conditions for the study period without the proposed action (baseline).
2) Forecast future conditions for the study period with the proposed action (with-project).
3) Determine the difference between the two and attribute that to the proposed action.

The second involves a somewhat different analytic process:

1) Describe existing conditions.
2) Forecast future conditions with the proposed action and determine the key factor(s) causing the change (for example, population influx).
3) Compare the future conditions to the existing conditions and derive the total change forecast to occur.
4) Determine what fraction of the key factors causing the change are due to the proposed action. Attribute that fraction of the impacts to the proposed action.

The difference between these two approaches is generally only important if there are large changes occurring under baseline conditions (e.g., other energy development projects) that could cause substantial change in community resources, social organization, or well-being. In this case, whether the baseline changes are assumed to have already occurred when those caused by the proposed action are considered (i.e., the project effects occur "on top of" other changes, as in the first approach), or whether they are assumed to occur simultaneously (i.e., the project effects constitute a portion of the total change, as in the second approach) can make a substantial difference in attribution. Since social forecasting primarily involves logical analysis, it is recommended that the forecasts be worked through using both these approaches, with the results presented in conformance with the format established by the team leader.

11.2.3 Inventory and Review the Data

To facilitate the data analysis and forecasting effort, it is useful to review and update the inventories prepared for the description of the existing environment (Chapter 9) and the documentation of baseline and direct project inputs (Chapter 10). In addition to summarizing the available information, the inventory can serve several additional important functions. First, it simplifies the process of validating the data. With the summary, it is possible to see whether the results from the interviews and observations agree with the results from secondary data analysis. If they do, the analysis can continue. If they do not, it is essential to reexamine the data to try to identify how large the differences are for what information/data exist, as well as to determine the reason for the discrepancies. This procedure of comparing data from different sources is called triangulation of data sources and is an important part of social assessment. As many data sources and measures of the same characteristic as possible should be compared to increase the validity of the results.

The second function of the inventory is to facilitate identification of the relationships that are most important to the forecast and

evaluation (this is discussed in the next section). The assessor can then begin to make logically derived judgments of the type and magnitude of the social impacts that are likely to occur and to focus attention on the key factors and relationships.

The third function of the inventory is comparative. From the organized inventory, the assessor can make comparisons between the communities in the study area in terms of existing resources, social organization, and indicators of well-being and in terms of the baseline and project inputs that will affect them. These comparisons can be used to highlight similarities and differences between communities and alternatives. These comparisons are particularly illustrative when carried through the forecasting process, and they are often useful to the decision-makers.

11.2.4 Organize and Systematize the Analysis: Work through the Social Organization Model

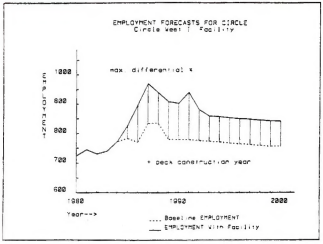
11.2.4.1 IDENTIFY AND ANALYZE MAJOR RELATIONSHIPS

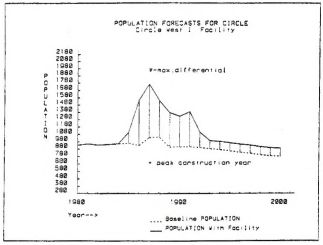
Once the information has been organized as described in the previous section, the forecasting process can begin. In most cases, the forecasts are made for each affected community or subarea individually, with the results then compiled for the entire study area. If there are large differences in the magnitude or characteristics of the direct project inputs at the peak temporary and long-term permanent periods, it is recommended that the impacts for each time period be forecast separately or that graphic representations similar to those shown in Figure 11-1 be prepared. In any case, the temporal aspects of the impacts must be clearly addressed.

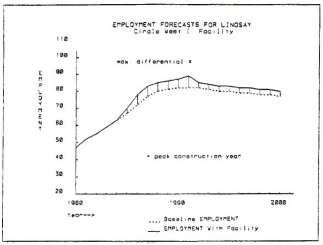
To analyze this complex and interrelated information, a method that helps simplify, organize, and systematize the analysis is needed. Since the assessment of social impacts is based largely on the estimation of qualitative changes and involves comparisons (the future with the action to the future without the action, one alternative to another), it is

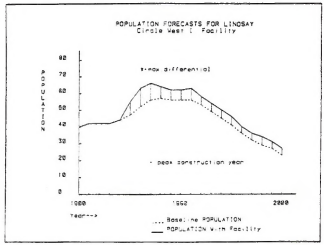
FIGURE 11-1

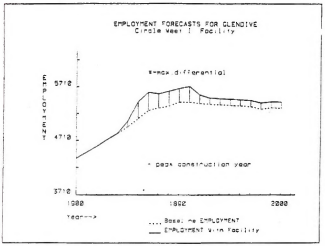
Graphs Representing Population and Employment Change

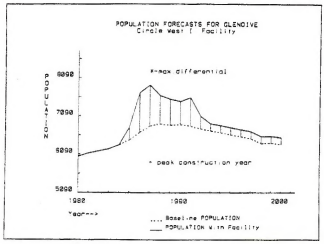












Source: Mountain West Research, Inc., 1981.

particularly important that an approach be used which ensures that all alternatives are analyzed using the same method and analytic framework.

A variety of different approaches could be used. The social organization model is suggested as an effective basis for organizing the analysis. Consequently, it is recommended that as the next step of the forecasting process, you work through each factor of the direct project inputs to determine which are pertinent to the assessment. Depending upon the type of action being assessed, it may be that one or two factors can be identified as key to the type and magnitude of the impacts that the proposed action would cause.[1] If this is the case, it is helpful to organize the forecasting effort (and comparisons among alternatives) around this (or these few) factor(s), using the others for refinement. One way to start this analysis is to work through a matrix similar to that shown in Figure 11-2, which identifies all possible combinations of inputs and community characteristics. The questions to ask for each combination are: (1) Can the type of inputs that have been forecast affect this characteristic? and (2) Can the characteristic affect the community's or individuals' response to this input? The purpose of this technique is to organize and systematize the analytic process to ensure that no important relationships are overlooked and to focus the remaining analysis by identifying the important project inputs and their major effects and eliminating those that do not warrant further consideration.

In working through the matrix, the assessor should determine if the relationship implied in each cell of the matrix is important and is not duplicated elsewhere. If the implied relationship is not important to the analysis, it should not be carried forward. This process can thus identify those relationships between project inputs and community

[1]For example, in some cases when assessing the impacts of large-scale energy projects, population change can serve as such a key factor. For assessments of proposed modifications of grazing regulations, changes in income and in resources are often the key factors; little population or job changes are usually anticipated.

FIGURE 11-2

Matrix to Identify Major Relationships

COMMUNITY _____
ALTERNATIVE _____
PHASE _____

	DIRECT PROJECT INPUTS					
	People	Jobs	Income	Resources	Organizations/ Regulations	Health & Safety
COMMUNITY RESOURCES						
•Historical Experience						
•Culture						
•Demography						
•Occupations (Livelihood) Labor Force						
•Employment and Income						
•Facilities/Services/Fiscal						
•Organizations and Regulations						
•Leadership						
•Attitudes and Perceptions						
SOCIAL ORGANIZATION PROCESSES						
•Diversity/Complexity						
•Outside Linkages						
•Distribution of Resources/Power						
•Coordination and Cooperation						
•Personal Interaction						
WELL-BEING INDICATORS						
•Behaviors						
•Access to Resources						
•Perceptions						

characteristics that will lead to important and consequential social impacts and that therefore need further attention.

Once the cells in the matrix that identify real and consequential impacts have been identified, attention can be focused on forecasting what the form and magnitude of the impacts will be. One method that can be used to examine these relationships is arrow diagrams.

The use of arrow diagrams serves two purposes. First, it can explicate the form and nature of the relationships between the variables. Second, it can provide a visual representation of the relationship. A few examples can illustrate this procedure. (See David R. Heise, Causal Analysis, New York: Wiley and Sons. Chapters 1-3, in particular, provide a more complete discussion of the use of arrow diagrams.)

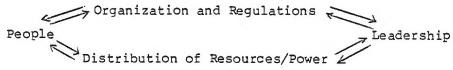
Suppose that a large population influx is projected as a project input and that the cell which is the intersection of people and personal interaction in Figure 11-2 describes an important impact. If people are designated as P and personal interaction as PI, then the relationship between the two could be diagrammed as follows:

$$P \rightarrow PI$$

This simple diagram states that people, or new population, will have a direct effect on the personal interaction patterns in the community. The assessor is thus alerted to the need to examine the pertinent information regarding this relationship and reach some conclusion regarding the likely consequences.

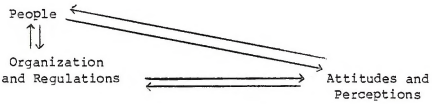
To provide further illustration of the use of arrow diagrams, consideration of the intersection of people and leadership may lead to the conclusion that this cell describes a potentially important impact. However, given what is known about the dynamics of community leadership, it would not be a good assumption that people per se will affect leadership, but that the effect will "work through" some other variable or variables. It may be that population will affect organizations and

regulations and distribution of resources/power, which in turn will affect leadership. The following diagram illustrates:



Thus, the impact questions become: How will population change affect organizations and regulations and distribution of resources/power? and How will these effects be translated into impacts on leadership? The answers to these questions form the basis of the forecast and depend upon the particulars of the relationship being examined.

A final example is provided concerning the relationship between people and attitudes and perceptions. It is likely that population change will directly affect the attitudes and perceptions of the longtime residents. But the effects could also be made indirectly through another variable. It is also possible that the attitudes and perceptions of the longtime residents could "work back" on the incoming population. The relationship can be diagrammed as:



Hence, people will directly affect organizations and regulations and attitudes and perceptions, and they will work through organizations and regulations to indirectly affect attitudes and perceptions. In turn, attitudes and perceptions directly affect people (and population change) perhaps by encouraging particular newcomers to settle in the community (or by being hostile to them and discouraging settlement) and indirectly affect them by causing change in the organizations and regulations. How all this may actually happen is, again, the forecast.

Different logical diagrams can be constructed for each cell that the assessor feels describes an important impact. The diagrams can then be checked against the data available in the inventories. If arrow diagrams are used, they should be (1) logical and (2) not too complicated.

It is possible that logical diagrams can be constructed that depict major relationships -- ones that could have a major influence on the outcome -- but for which no adequate information is available and about which no conclusions can therefore be drawn. If potentially important, the uncertainty created by this lack of information must be noted so that it can be reflected in the discussion of impacts. A problem frequently encountered is the need to assess the impacts of projects for which no information is available about how the company/agency implementing the action will interact with the community or what resources it will provide.

Second, it is important to be alert to the potential effects of uncertainty itself -- about the timing or magnitude of the inputs, about the consequences of the change, and about the accuracy of the information provided. The degree of uncertainty that is created by a proposed action can have real and sometimes serious effects on the communities that could be affected by it.

11.2.4.2 ESTIMATE THE DIRECTION AND MAGNITUDE OF CHANGE RESULTING FROM THE MAJOR RELATIONSHIPS

After each of the major relationships has been considered, the next step is to "add up" the results, determining what the overall force for change will be for each of the various aspects of the community -- resources, organization, and well-being. As you proceed through this analysis, it is useful to note whether the affected groups would consider the change positive (and seek to enhance or ensure it) or negative (and seek to prevent or modify it), as well as to note the temporal sequence in which the forces for change will occur. This summing up will allow you to estimate, usually in qualitative terms, the direction and magnitude of the force for change in each of the major elements of

the model for each of the alternatives being assessed.[1] This information is necessary for both of the next two steps -- estimating the magnitude and direction of change that these forces will produce and evaluating its meaning.

Once the forces for change have been estimated (or while these estimates are being made), the ability and willingness of the community to increase, modify, resist, or prevent these changes should be evaluated, and the likelihood of intervention by outside actors (the state or federal agencies) in problem areas should be assessed. Based on this analysis, the magnitude of the changes that are likely to occur for each pertinent aspect of the model should then be forecast. This process needs to be repeated for each of the alternative futures being evaluated, with the conclusions noted in a way that will facilitate comparison between them. It is sometimes helpful to compare the conditions forecast for the community with those in another community in the area (for example, you may be able to say the study community will change to become similar to community X). The next step is to make the comparisons between the with-project and baseline forecasts and determine the magnitude of the changes, or impacts, that can be attributed to the proposed action.

At this point, it is wise to reexamine the analysis to make sure that it is internally consistent, that all important relationships and interactions have been taken into account, and that the decisions and conclusions follow logically from the data. It is important to provide some measure of your confidence in and strength of the conclusions and to note the areas of uncertainty, assessing their ability to alter the magnitude or direction of the change. These conclusions can be recorded using the major elements in the social organization model as an outline, although it should be noted that the discussion should include only

[1]It should be noted that this process must be completed for the baseline (no-action alternative) condition as well. Throughout the assessment, it is important to take into consideration pressure for change from both outside the community (national, state) and from within the community itself.

those inputs, community characteristics, and impacts that have been found pertinent to the particular assessment being conducted.

11.2.4.3 EVALUATE THE MEANING OF THE ACTION-RELATED CHANGE (IMPACTS) TO THE COMMUNITY RESIDENTS

Once the existing, baseline, and with-action conditions have been estimated and the portion attributable to the proposed action has been identified, the social meaning of the impacts can be addressed. Two aspects of impacts must be evaluated. The first involves changes that affect the basic structure and processes of the community -- these affect how the community will deal with its future. The second involves the importance of the changes to current and new residents of the study area. The basis for making these evaluations are the data on attitudes and perceptions gathered as part of the description of the existing environment, plus any similar information on the newcomers that would be entering the community and the relationships identified in the social organization model.

To the extent possible, it is useful to make this evaluation for each of the major groups in the community, since the changes are likely to have significantly different meanings to different groups. However, where appropriate, it is important to evaluate the changes from the perspective of the community as a social unit as well. To guide this evaluation, several useful questions can be asked:

1) How will the changes affect the way people (and each group) relate to the community during and after impact?
2) How will residents (and each group) feel about living in the community during and after impact? How will they feel about having the community as their home?
3) How will residents (and each group) feel about sharing the community and its resources with the others, current and new members?

Once the forecasts and evaluations have been made, the results can be summarized in a format similar to that shown in Figure 11-3 to facilitate comparison of the alternatives. It may be worthwhile to discuss

FIGURE 11-3

Comparison of Alternatives

ALTERNATIVE	SUMMARY OF SOCIAL IMPACTS		
	Community Resources	Social Organization	Well-being
Baseline	MAJOR		
	OTHER		
Alternative 1	MAJOR		
	OTHER		
Alternative 2	MAJOR		
	OTHER		
Alternative 3	MAJOR		
	OTHER		

your forecasts and evaluations with other members of the team, with knowledgeable persons in the study area, and with other colleagues to make sure that nothing has been missed and to check the logic of the argument.

It should be recognized that these determinations involve judgments and decisions. There is no way to avoid this aspect of assessment. Because the discussion of the meaning of the changes deals with values, it is particularly important that it be based on the data and that this be clearly evident from the process and documentation of the analysis. It is recommended that any available, valid material on the outcome and interpretations of similar projects/programs be reviewed, that as much exposure to field conditions in both pre- and post-impact areas as possible be acquired, and that a rigorous, analytic, and logical process be applied in the assessment.

11.3 Documenting and Presenting the Results

At this point, the results of the social assessment can be prepared for presentation to the decision-maker. Before starting this task, procedural and administrative issues such as schedules, desired length of the report, format specifications, and bibliographic requirements should be reconfirmed. This information is usually available from the project team leader and/or the project editor. The report should be tailored to the expressed needs and desires of the decision-maker and/or project team leader. The social assessment is only one of many assessments that will constitute the final technical report and environmental assessment. For this reason, conformance to established outlines and procedures is particularly important.

If time permits, it is recommended that a draft working paper, much more inclusive than the final report, be developed before you prepare the final report. The draft report would incorporate all the pertinent data/information that has been collected and analyzed. This draft can either incorporate the entire existing environment report or abstract portions from it. The objective is to develop a report that presents

the impacts and a discussion of their meaning in a convincing and logical manner. It may be useful to summarize the findings in tabular form, similar to that shown in Figure 11-3.

When the draft report is completed, you may want to circulate it to others who are knowledgeable about the study area. These would include the economist, the facilities/services analyst, and other social scientists. Their review and comments should be taken seriously, and the draft should be revised if necessary.

It should then be relatively easy to revise the draft report to conform to the specifications of the technical report, eliminating or condensing discussions that were not particularly pertinent. The actual report that will be included in the EIS will probably be much shorter than the technical report and should include only those aspects genuinely important to describe and explain the impacts. Given the limited space, it is especially critical that the material be presented clearly in a logical and easily understood manner. In some cases, additional analysis or discussion papers may also be required.

The draft report and your field notes should be kept as documentation and backup. The decision-maker and other persons in the agency or outside it may want to read them, and they can provide a point of reference for monitoring the impacts that actually occur, or can be used for other assessments, either in the same community or elsewhere.

12. Mitigation, Monitoring, and Plan Selection

12. Mitigation, Monitoring, and Plan Selection

12.1 Introduction

One of the valuable uses of social assessment is to develop mitigation measures that can minimize a proposed plan's or action's negative effects and maximize its positive effects. Development of mitigation strategies, development and implementation of monitoring programs, and plan selection are generally team efforts to which the social assessor can contribute. As with the formulation of alternatives discussed in Chapter 8, identification and evaluation of mitigation/enhancement measures and monitoring programs depend upon an understanding of the mechanisms by which the adverse and positive effects are caused and an understanding of how the affected parties are likely to respond. The assessment procedures described in the preceding chapters should provide this understanding. This chapter describes how this information can be used to contribute to the development of effective and implementable mitigation/enhancement measures and monitoring programs that can in turn contribute to the plan selection process. It should be borne in mind that implementation of mitigation measures is often beyond the authority and/or resources of the Bureau of Land Management and other federal agencies. The Bureau role may focus on identifying and facilitating the adoption of mitigation approaches.

12.2 Development and Evaluation of Mitigation/Enhancement Measures

12.2.1 The Changing Role of Mitigation/Enhancement Measures

Adverse social effects can often be mitigated and positive effects enhanced by modifying the characteristics of the project inputs or by increasing the communities' ability to respond. It is important that the opportunity to enhance positive effects not be overlooked because the focus is entirely upon mitigation of problems.

In addressing issues of mitigation, it is essential to understand both (1) the need for and benefits of clear, analytic examination of

mitigation/enhancement opportunities and (2) the manner in which mitigation/enhancement is to be addressed in the particular assessment. In some cases, the position has been taken that mitigation/enhancement activities should not be identified, discussed, or recommended in assess- ments unless the agency has the authority and willingness to require that they be implemented. In others, the approach has been to identify possible mitigation/enhancement measures and evaluate their effective- ness in reducing the adverse impacts or increasing the benefits of the various alternatives, regardless of where responsibility for implementa- tion would lie. In others, only "committed" mitigation/enhancement measures are addressed, and the "mitigated effects" of the proposed action are included as the final evaluation of the likely impacts upon which the decision should be based.

As more experience is gained in managing development projects, the approach to mitigation will undoubtedly continue to change. However, whenever participating in a mitigation or monitoring effort, it is important to remember that project- and site-specific characteristics must be taken into account. To be maximally effective, mitigation and monitoring programs need to be designed on a case-by-case basis, with careful attention to need and implementability.

Social assessment can contribute information that is very useful in identifying and evaluating mitigation/enhancement opportunities. Since experience has shown that many of the adverse effects of development projects can be substantially reduced by effective mitigation measures, it is important that the social assessor be prepared to develop this information and participate in the discussion and evaluation of mitigation/enhancement strategies.

12.2.2 A Framework for Identifying Mitigation/Enhancement Measures

12.2.2.1 THE APPROACH

The principal problems in identifying mitigation/enhancement measures are to identify <u>what</u> could be changed to mitigate/enhance the effects of a proposed action and to determine <u>how</u> these changes could be

made. There are two ways to affect the social impacts of a proposed action -- change the characteristics of the project inputs or change the characteristics of the affected communities. The social organization model utilized throughout the guide provides an effective framework for identifying what could be changed in these two areas to affect the social outcome.

The process described in Chapter 11 for identifying and analyzing the major relationships between direct project inputs and community characteristics can be used effectively to identify and evaluate mitigation/enhancement measures. Here the focus is (1) on identifying aspects of the project inputs (including uncertainty) or the community that could be changed to increase the community's ability to respond and therefore reduce the adverse or enhance the positive effects and (2) on determining mechanisms by which those changes could be made.

To determine how the desired changes could be made, it is necessary to consider which organizations have the ability to affect either direct project inputs or community characteristics and what types of actions could be taken to implement them. For most resource development activities, the principal organizations with this ability are the following:

1) Federal agencies that control the resources
2) Companies or agencies that implement the development
3) State governments
4) Local governments and organizations

The principal actions available to these organizations include the following:

1) Imposition of conditions under which the proposed action can be taken
2) Imposition of legislative requirements or restrictions
3) Negotiation
4) Technical assistance and/or provision of information
5) Voluntary decisions
6) Public and political pressure

12.2.2.2 EXAMPLES OF MITIGATION/ENHANCEMENT MEASURES

One of the problems in identifying opportunities for mitigation/enhancement is knowing what kinds of alternatives to consider. Mitigation/enhancement measures and needs vary greatly by situation, as should be evident from consideration of the social organization model. The following descriptions of possible mitigation/enhancement measures should therefore be utilized as examples of the types of options that could be identified. The examples are organized according to the components of the social organization model, although other organizing criteria could be used. Further discussion of mitigation/enhancement measures that have been applied in energy development communities is provided in the community studies and research report prepared for this project.

Direct Project Inputs

One effective way to alter a project's effects is to alter the characteristics of the proposed action, and hence the direct project inputs, in a manner that reduces adverse and enhances positive effects. Some of the problems that are amenable to this type of approach are created by the following:

1) Uncertainty. It is not at all unusual for it to take three, five, or even ten years for an energy project to move from its initial conception to the beginning of construction. During most of this period, everybody involved with the project -- federal agency, sponsor, community -- is uncertain whether the project will actually happen. If the project is small, this may create few problems, except for those directly impacted. But if the project is large, the uncertainty itself begins to create social effects. The biggest problem is that it becomes very difficult to plan and prepare. For example, the housing developer doesn't know whether the demand for housing will be large or small. The school administrators don't know whether to add classrooms. The city doesn't know whether to expand sewer facilities, water hookups, etc. The businessman doesn't know whether to expand his business. If facilities are built in anticipation of the project and it doesn't come or is delayed, the people in the community have to pay for the facilities. Once a project becomes certain, there often is insufficient time to provide needed facilities before construction begins, with the result that the community suffers impacts during the construction period.

This uncertainty may be one of the most significant social effects of proposing a large-scale project. Some of the effects of uncertainty occur whether or not the project is ever implemented. Consequently, one aspect of modifying direct project inputs is to reduce the degree of uncertainty about the magnitude, schedule, and manner of their occurrence. This could be accomplished by:

-- Specifying early on the type and magnitude of mitigation measures that affect direct project inputs. An important mitigation measure can be the establishment of a collaborative working relationship between the company or agency that will implement the action and the affected communities from the earliest stages of the planning or decision-making process. This collaborative effort can begin long before mitigation measures must be specified for an EIS, and the EIS can summarize agreements that have been developed through discussions and negotiations between the community and implementors over a period of months or years. Developing this collaborative relationship requires coordination and cooperation among all the important actors. The community may need technical assistance or support to ensure that it is in a position to participate as an equal in the negotiations. The implementor will need to be forthcoming with its plans, keeping the community thoroughly informed and resolving problems with the community in an open and visible manner, even if this becomes cumbersome or frustrating. The community will have to develop leadership, and a consensus behind the leadership, that permit it to be represented in an informed and effective manner.

-- Requiring that contingency plans be developed, with a fixed timetable for their implementation and clear delineation of responsibilites for costs incurred if the project does not proceed on its original schedule.

-- Specifying that a monitoring program be implemented in which project inputs are controlled or adjusted to respond to emerging problems.

2) Sharp peaks and/or valleys in the entry/exit of people into the community. Possible mitigation through modification of project inputs could include:

-- Reducing the total number of workers utilized on the project.

-- Reorganizing the construction schedule to minimize the peaks and valleys.

-- Utilizing off-site construction techniques, in which components are fabricated elsewhere, trucked in, and assembled, thereby reducing the number of workers needed on-site.

-- Providing convenient (and possibly subsidized) transportation to the job site, an approach especially appropriate if there is a regional center or larger town within about 100 miles of the site.

-- Instituting local hiring policies to reduce the number of newcomers entering the community.

-- Restricting mobile homes and subdivision development, which would limit the number of housing units that could be built in the community and therefore the influx of population.

3) The distribution of employment or income among longtime residents and newcomers. Possible mitigation through modification of project inputs could include:

-- Developing training programs for local residents in advance of the project to provide them with the skills needed to obtain jobs, especially the higher-paying ones. Special effort could be made to increase the competitiveness of community residents who are otherwise unlikely to be effective competitors.

-- Developing on-the-job training programs to assist residents in upgrading their skills and to encourage local residents to qualify for permanent, well-paying positions.

-- Establishing special hiring policies to encourage local hiring. For union jobs, this would require the cooperation of the union.

-- Establishing a "buy local" policy, and assisting local businesses in acquiring the information and marketing skills that would enable them to compete for contracts to provide supplies and services.

-- Adjusting the schedule to increase the work force more gradually in order to moderate excess demand, reduce local inflationary effects, and allow local businesses and workers time to respond.

4) Additional resources provided by the project insufficient to meet the additional demands. Mitigative actions involving project inputs could include:

-- Reducing the levels of demand by reducing the population increase (see No. 2 above).

-- Providing or subsidizing the facilities/services that are in excess demand (this may affect income distribution and could be done by the implementor or other agency; e.g., the state).

-- Increasing or rescheduling the project's tax payments or payments made in lieu of taxes, either by changing local or state government tax rates or by having the implementor make payments voluntarily.

-- Underwriting bonds for the provision of community services related to the project.

5) Introduction of new organizations or regulations that reduce local autonomy and ability to respond. Examples of mitigative measures affecting project inputs could include:

-- Having new organizations take "noninterventionist" or collaborative positions.

-- Providing technical assistance to local governments, businesses, and organziations on how to deal with the new regulations.

-- Establishing countervailing linkages with local organizations/government to offset the effects of new organizations or regulations.

Community Characteristics

The other effective way to alter project effects is to alter the characteristics and response of the community in a way which increases the ability of the community to respond, to reduce adverse effects, to maximize positive effects, and to adapt to change. Problems that could be addressed by modification of community characteristics include:

1) Uncertainty. Changes in the community that could affect this factor include:

-- Developing a clear set of community goals and objectives and consensus about actions that could be taken by the community to move toward those goals or to prevent movement from them.

-- Developing contingency plans for the community that identify alternatives, the response that would/could be made, and the likely consequences.

-- Developing overall planning and administrative capabilities in the community that shorten the lead time for responding.

-- Developing and pursuing strategies to diversify the economic base and reduce dependence on a single sector.

2) Jurisdictional mismatch of funds and demand for services. Changes in the community that could moderate this problem (and enhance the benefits from project revenues) include:

-- Establishing joint powers boards which enable the application of resources to the areas of greatest need. This may require state legislation as well as technical assistance and encouragement to local governmental bodies.

-- Modifying jurisdictional boundaries; for example, through annexation.

-- City-county consolidation.

3) Inability of the local government to plan for or control development. Mechanisms for moderating this type of problem include:

 -- Establishing more formal procedures for dealing with growth issues, including the preparation of community development plans, zoning ordinances, and land use plans. This could be encouraged by federal and state agencies, by regulation, or by the provision of technical assistance.

 -- Preparing contingency plans for all major affected services (schools, sewers, water, fire, police) to ensure the optimal use of existing or expected resources. This can also be encouraged by assistance from federal and state agencies or the implementor.

 -- Conducting community-sponsored workshops, public meetings, etc., to identify community concerns and positions, to establish plans for addressing them, and to develop a unified community position.

4) Inability to respond to increased demand for services and facilities, including housing. Mechanisms for response include:

 -- Establishing policies that require developers to "pay as they go" in terms of utility hook-ups and that restrict additional residential growth to the desired areas through zoning and provision of utility hook-ups.

 -- Developing strategies to increase the financing capability of the community and local businesses/developers through cooperation with local financial institutions, modifications of bonding limits, sale of bonds, etcetera.

 -- Establishing outside linkages that can be used to obtain funds and technical assistance.

5) Inequitable distribution of benefits and costs among residents. This could be moderated by:

 -- Designing training programs and support facilities that would ensure that groups otherwise not likely to obtain jobs or resources could do so. This could include such things as organizing and supporting transportation, child care, etc.

 -- Developing programs to subsidize costs of development-inflated facilities and services for the needy (for example, rent supplements or construction of housing for the elderly or teachers), and ensuring that newcomers pay their way.

 -- Establishing policies and procedures that limit the ability of the powerful to take advantage of opportunities to the disadvantage of others in the community.

 -- Establishing zoning and tax laws that protect rural lands from excessive development pressure and increased taxes.

6) Poor relationships between newcomers and longtime residents. This could be modified through:

-- Encouraging civic and church groups to make active efforts to increase tolerance of the increased social diversity and to develop programs to make newcomers feel welcome and more familiar (for example, Welcome Wagon, school open houses, etc.).

-- Encouraging project employees to take an active and responsible role in community life, making efforts to limit problems like traffic (by staggering shifts), and instituting hiring policies that discourage disruptive behavior.

-- Making efforts to decrease the turnover among newcomers.

12.2.3 Presentation of Mitigation/Enhancement Recommendations

The identification of mitigation alternatives is likely to involve both discussion and written presentation of results. Decision-makers will expect the discussion of mitigation alternatives to address the issues of effectiveness and need -- which of the mitigation/enhancement measures that have been identified are likely to be most effective in reducing problems (at reasonable cost), and which effects really warrant mitigative efforts? Consequently, as part of this process, the analytic framework utilized to identify the mitigation/enhancement measures should also be used to work through a preliminary evaluation of their effectiveness. It would probably be useful to (1) prioritize the options first in terms of types of problems to be mitigated or areas to enhance and then in terms of the recommended approach and (2) identify who is responsible for effecting the mitigative actions.

12.2.4 Evaluation of Mitigated Alternatives

In some assessments, mitigation measures will be formally incorporated as part of the description of the proposed action, and the effects of the mitigated alternatives will be assessed as the basis for selecting the preferred alternative. If this is the case, the appropriate modifications should be made to the direct project inputs (and the community characteristics, if necessary), and the procedures described in Chapter 11 should be worked through for these modifications. The importance and meaning of the remaining social effects must be determined. As described in Chapter 11, it is recommended that the forecasts

and interpretations be field-checked, if possible, and reviewed with other team members.

12.3 Design of Monitoring Programs

12.3.1 The Purpose of Monitoring Programs

It is increasingly common for projects with the potential to cause adverse effects to be monitored by one or more of the involved entities throughout the implementation period to ensure that unexpected adverse effects do not occur and that the expected benefits result. Federal agencies are generally directly involved only in monitoring programs for which they have implementation authority, or perhaps for those in which they have long-term policy interests. Nevertheless, the increased emphasis on monitoring as an appropriate follow-on to impact assessment has increased the value of the information acquired throughout the assessment process. This makes it ever more likely that those responsible for social assessment will be asked to participate in or advise on the design of monitoring programs. Consequently, discussion of the design and purpose of monitoring programs has been included in this guide. As with the formulation of alternatives discussed in Chapter 8, this step will not necessarily be included in every assessment.

There are numerous factors, often outside the control of any of the actors involved, that can alter a project's active effects on a community -- for example, the number and timing of workers can change due to strikes, weather conditions, capital availability, design or supply problems, or market factors. In addition, because of the complex interactions that occur between the project inputs and community characteristics, the project's effects (and the mitigation programs) are often not exactly what was anticipated. When these problems are combined with unanticipated changes in the baseline conditions, as frequently occurs (especially in the energy development areas of the West), the level of uncertainty is such that all actors -- federal agencies, implementors, local communities, and state governments -- are becoming increasingly

interested in monitoring actual outcomes and providing mechanisms for intervention to respond to unexpected outcomes.

The basic problems in designing monitoring programs are to establish agreement about how to identify and measure problems that may emerge and how to allocate responsibility for responding to them. The design of monitoring programs must therefore address the following:

1) What variables should be monitored? How often?
2) How can the appropriate information be collected, compiled, or generated?
3) Who is responsible for providing what information?
4) Who is responsible for analyzing the information?
5) How is responsibility for intervention determined?

In most cases, the principal negotiations take place between the community and the implementor, although other federal and state agencies may have roles as regulators, arbitrators, and facilitators.

The following example illustrates how this might work. An implementor and a community were badly divided over two issues: compensation to the town for road damage caused by heavy project trucks and the need for additional housing. In the case of road damage, the implementor and the community could not agree on how much road damage was likely to be caused by trucks related to the project and how much would be due to timber trucks hauling logs over the same roads. In designing the monitoring program, they agreed that during the construction period, an individual would be posted at a key intersection to keep a tally of timber trucks and project trucks. Using a mutually acceptable formula, the implementor agreed to then reimburse the town based on the actual count. The implementor also agreed to pay for the cost of keeping the tally. (This brings up an important limitation on monitoring -- sometimes the costs of monitoring are greater than simply agreeing to someone else's estimates.) In the case of housing, the sponsor agreed to pay for a housing census to be conducted at the beginning of construction and at periodic intervals thereafter. Based on an established formula, the sponsor would provide alternative forms of housing (e.g.,

camper hookups, trailer parks) or worker transportation from surrounding communities, if necessary.

Obviously, it must be possible for the responses which have been agreed upon to be made within the time frame available. For example, a housing census would have to be able to predict housing problems far enough in advance that the sponsor could provide the temporary housing or transportation by the time it was needed.

While there are limitations to monitoring in areas undergoing large changes, such as the major energy-impacted areas of the West, periodic monitoring may be an alternative to conducting expensive studies of project effects that could more reliably be measured as they are happening.

12.3.2 Guidelines for Designing Monitoring Programs

There are several guidelines that should be observed in the design of monitoring programs. These include the following:

1) Objectives and issues must be clearly defined. Monitoring programs should only be developed for areas of significant need or likely impact, as documented by the assessment. They should not be used as "research for research's sake," nor should they be used when there is a simpler, more direct solution upon which people can agree.

2) Measurements must match objectives. A major problem in developing monitoring programs is getting agreement on what measures accurately portray the effect being measured. The things which can be measured are usually very specific and concrete, while the social effects that are occurring are often relatively intangible. How do you measure a loss of the sense of knowing and being known by others in the community? Care must be taken to ensure that the thing being measured in fact measures the characteristic or effect people are concerned about. Does, for example, a "housing shortage" mean a very low vacancy rate, which is comparatively easy to measure, or does it include numerous other issues such as cost of housing, living in housing less satisfactory than previous housing, changes in the types of housing (being forced to live in multiple-unit housing when one would prefer a single family residence) and so on. If the other factors matter, then the measures must take them into account.

3) Availability of data. The problems of creating a monitoring program that really measures what it is supposed to measure are created largely by the desire to use existing data. It is usually expensive to generate primary data, so there is a tendency to use an indicator that is available, even if it doesn't really solve the problem. However, if the available data can serve as an adequate proxy, they should be used to reduce the costs and time delays often associated with primary data collection.

4) Timeliness of data. Data which could be used for monitoring are often generated and compiled by existing agencies. A potential problem may be that the data are not available in a sufficiently timely fashion to be useful for monitoring purposes. If, for example, population size is to be monitored, it cannot be based on Regional Economic Information Service Data (REIS), which has a time lag of eighteen to twenty-four months, too great to be useful in measuring what is actually happening in the community. In this case, a method of population estimation that could be done rather quickly and inexpensively would need to be used. Before committing to the use of any existing data source, it is important that its availability and timeliness be checked. Much of the pertinent published data for measuring social effects have at least a two-year lag.

5) Reporting frequency. Even if primary sources of information -- such as a housing survey -- are used, they must be repeated at appropriate intervals to be useful. If it takes six months to respond to housing problems, then the problems must be identified early enough to permit effective response. If the time between monitoring is too long, the effects may be discovered only after they are serious and can no longer be prevented.

6) Specifying authority for implementation. A monitoring effort is much more effective if there is clear agreement about what is to be done if problems are discovered. To accomplish this requires not only agreement among the parties involved, but also some institutional analysis to ensure that the program is implementable. An area that should be clearly defined in advance is who is responsible for interpreting the monitoring data and who has the authority to trigger action.

7) Community "ownership." The monitoring program need not be established by imposition; it is usually more effective if it results from negotiations between the stakeholders so that several parties or organizations have the responsibility, or a sense of ownership, for the program.

In most cases, federal agencies do not have the power to impose a monitoring program, but can accomplish the same effect by encouraging negotiations between the stakeholders.

12.4 Participation in Plan Selection

The role of the social assessor during plan selection varies considerably based on the decision-making process and the relationship the assessor has built with the assessment team leader and/or decision-maker. As a minimum, once mitigation plans have been finalized for each plan, the assessor will develop a final statement of probable social effects for each. Preferably the assessor will have the opportunity to participate in the trade-off discussions or other kinds of decision-making meetings in which social information may be important.

During plan selection, the basic tasks include the following:

1) In conjunction with the public involvement staff, identify the reactions of the various stakeholder groups to the mitigation alternatives. (This task may have been completed as part of the work discussed in Section 12.2.)
2) Assist in ensuring that a negotiation process takes place that leads to a mitigation plan which is acceptable to the agency implementor, communities, and state governments.
3) Review the institutional arrangements for the final mitigation/enhancement plans to make sure they are feasible.
4) Present the final statement of social effects for each alternative, based on the final mitigation plans (developed in Section 12.2), in which the anticipated social effects are described and evaluated and the reactions of stakeholder groups to mitigated alternatives are summarized.
5) Attend trade-off or other decision-making meetings to explain the social effects projections or to portray the concerns of the stakeholder groups.

12.4.1 Determine Stakeholder Reactions

Social effects are caused by perceptions as well as by actual events. For this reason, it is important to know how the stakeholder groups evaluate the mitigation/enhancement measures and monitoring programs. The acceptability of the plans is an important component of their social effectiveness. In determining acceptability, the assessor is often in a position to serve as a conveyor of information, not just information concerning social mitigation, but that concerning mitigation of effects on the natural environment as well, because contact with people in the community is required for most social assessments.

Identifying the positions of the stakeholder groups is a role likely to be shared with public involvement staff. Consultation between the various team members is often necessary to ensure that there is not an unnecessary duplication of effort and that the efforts complement and reinforce each other.

12.4.2 Participate in Establishing a Process of Negotiation, if Appropriate and Possible

There are some things that may not be adequately covered in the EIS process. One of these is specification of the process by which final commitments are made on mitigation. It appears that a negotiation process in which the affected communities participate is preferable to mitigation imposed solely by an outside agency. Since one potential negative effect of development is that communities will lose their sense of control over decisions affecting them, mitigation commitments that are determined without the participation of the affected communities can aggravate this negative social effect. Communities that have participated in shaping mitigation efforts are likely to have a better understanding of the possible effects and the mechanisms by which they are caused, and they are therefore able to respond more effectively, thus contributing to the reduction of adverse consequences.

It is not entirely clear whose responsibility it is to establish such a negotiation process, although it is evident that it cannot be initiated without the approval and support of the agency responsible for making the decision allowing or denying the proposed action. The agency personnel most likely to be concerned about the negotiation process are the decision-makers, the social assessors, and the public involvement staff, both because they have some sense of responsibility for such issues and, in the case of the social assessor and public involvement staff, because they are in regular contact with the community and (hopefully) have professional training which can be helpful in establishing or facilitating such a process.

One responsibility that is shared by the social assessor and the public involvement staff is to identify the need for such a process and communicate that need to the decision-maker. Neither the assessor nor the public involvement staff can initiate such a process without the decision-maker's approval. Once the decision has been made to establish such a process, the assessor and the public involvement staff can work together to identify alternative approaches and to recommend a course of action.

Quite obviously, establishing such a negotiation process requires the cooperation of all the important actors. If the relationship among them is antagonistic, some party may be unwilling to participate. To the extent that the agency conducting the assessment is in a decision-making or regulatory position (i.e., has the power to grant or deny a permit), it is in a position to encourage such cooperation.

12.4.3 Review Institutional Arrangements

Typically, mitigation plans will involve the cooperation of several community institutions or governmental entities. Cooperation may be needed for things like changes in tax rates, establishment of joint boards, agreement to operate a facility, and so on. This is true to some extent with environmental mitigation, but it is particularly true for social mitigation, where efforts are needed from a number of different institutions and actors in order to be effective.

However, the responsibility within the agency for exploring the institutional feasibility and commitment to mitigation programs is not always clear. Although there is no specific authority for the social assessor to be the person who does an institutional analysis, the social assessor is likely to be the person in the organization with the most information about the institutions and the skills to perform the analysis. Whether or not the assessor takes on this responsibility should be decided in consultation with the assessment team leader or decision-maker.

12.4.4 Final Summary of Effects

Once final mitigation plans have been developed and agreed upon, the assessor is in a position to assess the probable social effects of each mitigated alternative, as described in Section 12.2. Although a number of variables and complex interactions must be considered, it is important that effects be summarized for easy review, with back-up materials available as needed. This is preferable to only describing one or two effects, since it is not always completely predictable which variables will be judged important during trade-off meetings.

One caution is to avoid stating social data in quantitative terms just because it makes them easier to summarize. Much social information is inherently qualitative and is distorted when stated solely in quantitative terms. It is better to develop a short verbal statement with reference to back-up material for this type of information than to distort it by inappropriate quantification. However, where quantification is possible and meaningful, it can be particularly effective. The purpose of the summary -- to accurately and succinctly present the conclusions of the assessment -- should serve as the principal guide to presentation format.

Although the community residents and other interested parties have probably seen preliminary estimates of effects, it is only after final mitigation plans have been determined and a final appraisal of effects has been made that they will have a chance to see a final assessment of probable social effects. As a result, a final review of stakeholder reactions is needed to determine what effects the proposed mitigation plans have on acceptability. Coordination among team members is particularly important at this step. The information obtained about the acceptability of the various mitigated alternatives to various stakeholder groups should be included in the summary, with back-up materials explaining why the stakeholder groups take the positions they do.

12.4.5 Participation in Trade-off Meetings

Participation in trade-off meetings or other discussions regarding plan selection is often an effective means to insure that social data is understood and that the possible reactions of the stakeholder groups are taken into account. In order to be a welcome guest at such meetings, the assessor must remember that while it is appropriate to make clear the significance of the social effects, it is not his or her role to judge the relative importance of social effects in relationship to economic or environmental effects. That responsibility remains with the decision-maker.

SECTION III:
METHODS AND TECHNIQUES

13. Organizing and Conducting a Field Trip

13. Organizing and Conducting a Field Trip

13.1 Introduction

This chapter provides guidance on planning and conducting field work. Although some of the suggestions included in this chapter may appear obvious, a review of the basic steps involved in planning a field trip and working in the field can be useful even for those with substantial field experience.

13.2 Define the Purpose of the Field Work

One of the most important aspects of preparing for field trips is to clearly define why the trip is being conducted and what it is to accomplish. Field trips can serve a wide variety of functions, from familiarizing yourself with the general characteristics and appearance of an area to providing specific information.

Several factors influence the purpose of a field trip. These include the following:

1) The objective of the overall assessment effort. This influences the type of information required for the social assessor to meet the needs of the decision-maker.

2) The role of this field trip within the social assessment process. During the scoping phase of an assessment effort, the purpose of a field trip is usually to gather general information about the size, location, and appearance of study area communities and to identify major stakeholder groups and community issues. During later phases, the purpose is likely to be to gather more specific information or to verify data or analyses.

3) The information requirements of this particular social assessment. Although it is useful to field check conclusions reached from secondary data, the field trip should focus on obtaining information about community characteristics that could be important to the assessment. It is easy to become sidetracked in the field, and although curiousity about how the communities work and what is happening in them can be beneficial, it needs to be controlled in order to maintain focus on the pertinent aspects of the community.

4) The availability of information from other sources, including other team members. A field trip should not be used to collect information that is already available from secondary sources or from other team members. Field time is valuable and should be used to acquire information not otherwise available.

5) Other team members' needs for information. Social assessment requires familiarity with the study area communities. Since gathering much of the information required by the social assessor involves observing how the community functions and talking with community residents, the social assessor is likely to need first-hand exposure to the communities. In some cases, the social assessor can gather field information for other team members who have less need for this exposure to the community.

In order to define the specific purposes of a field trip, other available materials need to be collected and reviewed. These are described below.

13.3 Review Available Materials

There are a number of documents or materials -- "secondary sources," as they are called -- that can profitably be reviewed before visiting the study area. Reviewing these materials prior to the field trip enables the social assessor to determine what information is already available (and therefore does not need to be collected in the field) and to become better informed about the area. This advance preparation allows collection of better information by identifying important issues or questions that should be covered in the field work. It also helps build credibility for the assessment effort and enhances the assessor's ability to initiate interviews in the study area communities. As the work proceeds in the community, new sources of information will be found. It should be kept in mind that utilization of secondary sources is a continuing activity, not simply advance work. Specific guidance on the use of secondary sources is provided in Chapter 15.

Particularly in areas where energy resource development has occurred, a great number of lengthy reports have often been prepared. An incredible amount of time can be spent if those reports are read in detail instead of scanned for information relevant to social concerns.

Consequently, a useful skill to develop is the ability to scan documents and abstract the pertinent information without getting bogged down in extraneous material.

As has been indicated, the range of possible secondary sources is wide and varies from site to site. Among the most useful types of secondary sources are:

1) County comprehensive plans. Many counties have prepared comprehensive plans that provide valuable background information about the area, the institutional structure, and the expectations and preparations that have been made for the future. These plans are generally available in the local library or from the area planning board.

2) Census data. Data from the most recent United States censuses can provide a good indication of the type of change that has occurred in the area over the last several decades. It is useful to obtain any special census data that have been compiled for communities or counties in the study area. These data are generally available in BLM libraries or at libraries serving as federal depositories.

3) Environmental impact statements/socioeconomic studies. In many cases, other state or federal agencies or private companies have prepared environmental impact statements or other socioeconomic studies as part of their proposed activities in the same geographic area. These often provide background information about the area.

4) Local histories. Local authors frequently have written and published histories of the area. These documents can be helpful, but it is important to remember that often they have been written by people with a particular point to make (such as demonstrating the importance of their own family in local history) or by people who need to maintain peace with their neighbors. Care in their use must be taken because some of the more controversial community events or issues may be distorted or downplayed.

5) Maps. Accurate maps of the towns and counties included in the potential study area should be examined and kept handy for reference.

6) Lists of public officials. Developing a list of local elected and appointed officials, major agency directors, and their principal functions can prevent unnecessary social errors and enhance understanding of the institutional structure of the area. Usually such lists can be compiled from materials available from state agencies, the local chamber of commerce, or city or county administrative offices. Back issues of these documents can also be useful.

7) Local newspapers. Scanning local newspapers is one good way to identify major stakeholder groups, major controversies, and how the community deals with issues. Long-standing or unusual levels of conflict between groups or jurisdictions, for example, will usually show up in some form in the local newspaper. Normally it is useful to review two or three weeks worth of recent newspapers and the most recent annual edition of the newspaper before beginning field work. Local newspapers are usually available at local libraries or at the newspaper office itself. Newspapers, especially the editorials, can often provide additional information and a different perspective on the important issues/events identified in local histories.

Given the wide array of potential secondary sources, the first step in this task is to gather the available materials, review them, and prepare a bibliography, noting additional studies or reports that should be obtained for review. By checking with the person responsible for report format to make sure that your bibliographic references are complete and properly formatted, you can save considerable inconvenience later one.

Once agreements have been made with other team members and available secondary sources have been reviewed, the field trip can be planned and scheduled. In some cases, considerable coordination with other team members will be required, so scheduling of the trip should be done well in advance.

13.4 Plan the Field Trip

The major steps that need to be taken to prepare for a field trip include:

1) Review the area maps and familiarize yourself with the geography of the proposed study area, noting particularly transportation links, distances between towns, and the location of county seats and regional governmental offices, if pertinent.

2) Make sure you understand how the agencies that either provide or regulate the important services in the area are organized, where the offices with jurisdiction in the study area are located, and where the jurisdictional boundaries are located.

3) Think through the assessment process. Identify for yourself the important attributes of the proposed types of alternatives, given the study area characteristics. Based on the review of secondary sources, note characteristics of the study area as

well as data gaps and questions that seem important and require additional information or field-checking. (See chapters 7 and 9 for additional discussion of this process.)

4) Review the list of public officials and identify those who should be notified about the study and those who should be interviewed.

5) Determine who else from the assessment team will be in the field and whether a joint trip should be planned. Make sure coordination with other team members is working, set a schedule for your trip, and make travel arrangements. The duration of the trip will depend on the size of the study area and the number of communities that need to be visited. Remember that a staggering amount of information can be obtained each day on a well-organized field trip and that to be useful, this information must be recorded and analyzed. Several shorter trips, separated by office time to document the field work and prepare for the next step, are preferable to fewer long ones.

6) Determine the appropriate sampling and surveying methods for the field work (see Chapter 14). If informal interviews are to be used, prepare a set of interview guides and become sufficiently familiar with them that interviews can be conducted fluently in a conversational, rather than "questionnaire," format (this topic is discussed in more detail in Section 13.6). Prepare a bibliographic form for referencing personal communications.

7) Check with people you know to see if they have any good contacts in the study area communities. Although they must be used with caution, mutual acquaintances can help to break the ice in unfamiliar communities and can often provide access to people who would otherwise be difficult to interview.

8) Notify local officials of your visit and set up initial appointments. This can and should be done in advance. Notification of officials can be used as an opportunity to set up the initial appointments in a community (a good way to force yourself into those difficult first interviews). If you do this, make sure to allow ample time between interviews. Nothing is more frustrating than having an interview reach a critical point when you must leave to meet with someone else. If you really plan to conduct an interview, not just pay a courtesy call or pick up some data, allow at least an hour between interviews, preferably somewhat more. This topic is discussed in more detail in Section 13.5.

9) Organize the materials you will take along. If available, a small cassette tape recorder can be very useful for recording field interviews and observations. Make sure you have sufficient forms and interviewer guides and clear instructions about the information you are to gather for others. Know and follow the administrative procedures regarding travel and travel expenses. (Make sure that you have sufficient money for the trip. Smaller restaurants and stores in rural areas often do not accept checks or credit cards.)

13.5 Notify Local Officials

The manner in which initial contacts in the local community are made influences the professional credibility of the assessment effort. It is important to be well informed before going into the field. It is also important to observe protocol by notifying appropriate local officials that researchers will be working in the community or study area. In a rural area in particular, outsiders are very visible. Promptly and clearly notifying local officials about the nature of the work underway can often avert suspicion and damaging rumors. Extending courtesy to local officials also helps establish the social assessor as a professional who knows how to do his or her job. It also validates the social assessor's function and reason to be in the community. In rural areas in particular, establishing this legitimacy can save considerable time and effort by creating an atmosphere that encourages people to come forward and volunteer information.

The persons who should usually be notified in advance about the field work include the following:

1) County commissioners. In western states, each county is governed by county commissioners or, in some areas, a board of supervisors. Typically this is one of the most powerful political entities in the area. Sensible protocol dictates that county commissioners be notified before beginning work in the area. Usually a phone call will suffice. If the community in which work is to be done lies solely within the electoral district of one commissioner, he or she would be the person to notify. If multiple districts are involved, the chairman of the county commission should be notified. If there is a county administrator, it is advisable to notify him or her in addition to the commissioners.

2) City administrators. City or town officials should also be notified. It is best to notify both an elected official and city staff.

3) Agency directors. Depending on the community, directors of BLM and other state or federal agencies or local service agencies may need to be notified.

4) Law enforcement officials. While not mandatory, it is often helpful to advise the local police chief or county sheriff when working in an area.

13.6 Prepare Interview Guides and Field Instruments

When the purpose of the field trip has been established and the available information reviewed, instruments or forms for obtaining and recording information in the field can be prepared. The purpose of these guides and forms is to organize the collection and analysis of the information. An incredible amount of information can be obtained in an intensive day of work in the field. Documentation of this information is important. Particularly in assessments that cover a number of different communities, a systematic method for organizing data collection and recording is critical.

Guidance on identifying the information needed about the existing environment in each community is provided in chapters 7 and 9. Chapter 14 discusses the selection of sampling procedures and survey methods as well as the preparation and use of interview guides and questionnaires. If the field work is to include the supervision or implementation of a survey (either the drop-off and pick-up or face-to-face type), this task needs to be scheduled into both the field time and the time allotted for reviewing and analyzing the information.

13.7 Conduct the Field Work

Typically, most of the field work will consist of a series of interviews with local officials, influential citizens, and other knowledgeable community residents along with continual observation. It frequently starts with interviews of people holding key positions (a list of whom was prepared prior to the field trip) and leads to interviews with other people in the community who were mentioned in previous discussions as being influential or well informed. It is also possible to set up informal group meetings, such as coffee klatches or kitchen meetings (where a few neighbors get together) or interviews with high-school students, to participate in formal workshops, or even to conduct mini-surveys (small random sample surveys).

It is often difficult to determine how to initiate the field work once you arrive in the community. Several specific things can be done to get started. These include the following:

1) Drive through the community. Upon arrival, it is often helpful to drive through the community until you develop a sense of geographic and visual familiarity. This will help make you feel more comfortable and "at home." Familiarity with the area can contribute greatly to your ability to appear well prepared and well informed about the area. Driving through a community will often provoke ideas or questions about how the community is organized and may suggest alternative methods for obtaining information or prompt you to think of other questions to ask or other groups or individuals to interview.

2) Interview local officials. The process of notifying local officials provides an opportunity to schedule interviews with these people and/or to solicit suggestions about who should be interviewed. (After all, it is the political lifeblood of an elected official to know who the influential people in the area are.) It is wise to schedule in advance the first one or two days of interviews of the field trip. This not only prevents wasted time trying to set up interviews in the field, it is also an effective way to force yourself into those first difficult interviews.

3) Visit the local library. A visit to the local library will usually be required to review newspapers and locate local histories, as suggested earlier. While there, it is useful to explain the assessment effort to the local librarian. Librarians often pride themselves on being helpful in locating source materials and, if he or she understands what the social assessor is trying to accomplish, can be an invaluable guide to the materials in the library. Not infrequently, the local librarian has been a part of the local community for a number of years and may be personally acquainted with much of the history of the area, even if it is not in written form. The library is also often a good place to go to write up interview notes.

4) Visit public service agencies. Local public agencies are used to receiving inquiries from people outside the community and can be very helpful in providing or finding the needed information. Public service staff can often empathise with the problem of being a stranger in town and may therefore be good subjects for the first interviews in the community. People who are often particularly helpful include the director of the local chamber of commerce, the local agricultural extension agent, the mental health director, and the director of the social welfare department.

5) Contact retired officials. Some of the most valuable informants are often residents who formerly held public positions in the community; for example, retired judges, former newspaper editors, former county commissioners, and former city council

representatives. The review of the local newspaper may turn up a few names of such individuals, and other suggestions will be made during interviews.

The reason for making specific suggestions about what to do when first entering the community is that the first interviews are often hard to initiate. Driving around the community and gaining a sense of "knowing" it can heighten confidence and make the first contacts easier. Having made firm commitments for specific interviews beforehand also helps avoid delaying tactics. Feeling reluctant to initiate interviewing is one of several problems that frequently occur. Being prepared to recognize and deal with the following problems can make field work more productive and less anxiety-provoking.

1) Talking too much or too little. When people are nervous or anxious, they have a tendency to either talk to relieve their anxiety or to become very quiet. However, the essential art of interviewing is to be a good listener while simultaneously guiding the interview onto the topics that need to be covered. Being sensitive to the need to monitor your participation in the interview and being prepared to adjust your approach will make your interviewing much more effective.

2) Supporting a particular position. Good assessment requires objective data collection and objective analysis. This means that you must put aside your personal preferences to the extent possible and make every effort to give all points of view a fair hearing. The assessment process is inherently very political, and you may be encouraged (sometimes pressured) to take sides in your analysis or presentations. Once you are perceived as having abandoned your objective position, your professional credibility will be seriously jeopardized. Consequently, while in the field it is best to keep personal positions to yourself; they have no place in the discussions. Your assessment is to be based on the information you are trying to gather, not on your own views. Be careful to make clear that you will maintain your personal integrity in using and interpreting the information you receive.

3) Making too many commitments. There is a tendency early in a study to make commitments that can be difficult to meet: for example, to share copies of findings, to include particular information in reports, or to interview people again later in the study. Even if these commitments are made with the best of intentions, they often can't be kept. Changes in time frame and budgets within the agency may limit your ability to keep these commitments, or they may even redirect the entire thrust of the study. Your appraisal of what issues are significant may change as the study progresses, making earlier commitments

inappropriate. As much as possible, it is preferable to avoid making these types of commitments.

4) Forgetting you are under observation. In small, rural communities, any outsider is under observation twenty-four hours a day. No distinction is made between on-duty and off-duty time. One needs to be very circumspect about conversations and behavior at all times while in the field.

13.8 Document the Field Work

Upon completion of the field work, the data obtained in the field must be recorded and stored so that they will be easily accessible in the future. Specific tasks that need to be carried out include the following:

1) Record and file field notes, interview notes, and all other data collected in the field.

2) List all follow-up letters and phone calls that need to be made, such as thank-yous, requests for information, and responses to requests.

3) Write a trip report that covers all major activities and events in the order they occurred. (Keep in mind issues of confidentiality if the reports are to be shared with others.)

4) Prepare a list (including bibliographic information) of the material that was obtained and personal contacts that were made.

Once this documentation is completed, it is a good time to analyze what has been done, what was most productive, and what follow-up tasks are needed in order to determine what revisions need to be made in the social assessment plan and perhaps to start planning the next field trip.

14. Sampling, Surveying, Interviewing, and Data Analysis

14. Sampling, Surveying, Interviewing, and Data Analysis

14.1 Introduction

Much of the information for a social assessment will usually be obtained by talking to people in the community. Community leaders, representatives of stakeholder groups, staff of service-providing agencies, and residents of the community all have information and perceptions that may be important to the assessment. The purpose of this chapter is to provide guidance on how to determine which people to interview (sampling), what method to use for collecting the information (surveying approach), how to prepare for and conduct effective interviews (interviewing), and how to analyze and use the information. Since most of these areas are well documented in the social science literature, the focus of this chapter is on highlighting the important considerations and identifying pertinent references for each topic. Because specific terminology has been developed to describe sampling and questionnaire design that may not be familiar to all users of the guide, a glossary of commonly used terms is provided in Figure 14-1.

It should always be kept in mind that the purpose of the assessment is to provide the decision-maker with usable, valid information at a level of detail appropriate to the problem and the decision. The purpose of the assessment must be understood before decisions regarding sampling, surveying, and interviewing can be made.

14.2 Define the Objectives of the Primary Data Collection Effort

Before the technical issues of sampling, survey method, and interviewing techniques can be addressed effectively, the purpose of the primary data collection effort must be defined. This requires carrying out a process similar to that described in Chapter 13 for defining the purpose of the field work, although at a somewhat greater level of specificity. Primary data collection is an activity that must be

FIGURE 14-1

Glossary

Call-back. The attempt to contact a potential respondent who was not contacted on the first try or subsequent tries. This would include going back to the residence or making additional phone calls until the respondent is contacted or dropped.

Item Nonresponse Rate. The number of occurrences in which a particular question in a survey was not answered by the respondent divided by the number of times it was asked.

Nonprobability Sampling. Sampling techniques in which the probability of a unit or person being selected is unknown. Generally refers to sampling techniques that are not guided by probability sampling.

Population. All persons or units who have the attributes or meet the definition of the researcher that are relevant to the research question.

Probability Sampling. Sampling techniques in which the probability of each person or unit being selected is known before the sample is taken.

Response Rate. The number of completed interviews divided by the sample size. This can be refined somewhat by subtracting out the number of respondents that could not be contacted from the denominator. Refusals should be kept in the denominator, however.

Sample. A proportion, or subset, of the population of interest that is selected to be interviewed or sent questionnaires.

Population. All persons or units who have the attributes or meet the definition of the researcher that are relevant to the research question.

Sampling Frame. The test, schedule, or definition of the population from which the sample is drawn.

Sample Size. The total number of persons or units to be interviewed or sent questionnaires.

Snowball Sampling. A sampling technique in which respondents are asked to name others who should be interviewed, and those named are interviewed and asked who also should be interviewed, and so on.

Structured Questionnaire. A questionnaire in which all the questions are preset before the interview, and these questions are asked exactly the same way in each interview. A structured questionnaire may have all the responses set in advance also, although it may contain "open-ended" questions. (The "open-ended" questions are preset, only the answer is not.) Structured questionnaires are also called standardized questionnaires.

FIGURE 14-1 (CONTINUED)

Unit of Analysis. The level of types in terms of which the sample is drawn and data are analyzed and discussed. For example, an adult member of a household may be selected as the respondent in a survey in which the unit of analysis is the household, or similarly, a city council member may be interviewed as the respondent in a survey in which the unit of analysis is the city government.

planned and designed. Four basic questions influence all sampling and survey decisions:

1) What information is needed?
2) Who has the information?
3) How can it best be obtained?
4) How should it be analyzed to provide the information in the most useful format?

Before proceeding with design of the primary data collection effort, it is essential that the first question be answered carefully, based on the information provided in chapters 7 through 13, since specification of the information requirements defines the objective of the sampling and the interviews/surveys, and it also determines many technical decisions. Without a clear delineation and understanding of the information requirements, it is not possible to design an appropriate sampling or survey procedure or to develop useful interview guides or questionnaires.

14.3 Sampling

The process used to determine who should be interviewed is called "sampling." Sampling procedures can be divided into two main types:

1) Probability sampling
2) Nonprobability sampling

14.3.1 Probability Sampling

Probability sampling procedures are used when it is important to know how the sample compares to the total population. Probability sampling is necessary when the purpose is to determine (or estimate) the characteristics of the population or to determine the effects of particular characteristics, programs, or situations (through statistical hypothesis testing). Probability sampling procedures are sometimes called "scientific" procedures because they are designed to address the issues of representativeness and reliability. Because probability sampling procedures are systematic, they provide a basis for replicating

(repeating) the survey to verify results or to compare one sample or population with another.

The main purposes of probability sampling in social assessment are the following:

1) To compare the characteristics and responses of different groups
2) To identify characteristics that are associated with differences in response
3) To estimate characteristics of the total population (including the distribution of characteristics within the population)

In general, one can make stronger statements about the implications of data obtained from probability samples than the data obtained from nonprobability samples. A great deal of work has been devoted to the development and analysis of various sampling procedures, and there are a number of excellent books and articles that explain the theory, mechanics, and implications of various probabilistic sampling procedures. It is useful to understand and feel comfortable with the fundamentals of random sampling, since this provides a good basis for most of the sampling problems that will be encountered in a typical assessment.

Unless you have training in sampling and surveying, it is recommended that the assistance or advice of a specialist be sought if the purposes of the assessment indicate a need for a survey that will estimate general population characteristics. In general, this approach is justified only in situations where the procedures and results may have to be defended in terms of reliability and precision. Large scale surveys are very expensive. Estimates of the cost of preparing, conducting, and analyzing telephone and mail surveys range from $15 to $25 per interview, while surveys utilizing face-to-face interviews can easily cost $50 to $150 per interview. Since there are well-established procedures for sample selection and data analysis, it is important that they be followed correctly if this approach is selected.

14.3.1.1 RANDOM SAMPLING PROCEDURES

If it is necessary to gather information from the general population of the community or from a "representative" sample of particular groups

in an area, a random sample will need to be drawn. Several steps are involved in drawing a random sample:

1) Define the population from which the sample is to be drawn.
2) Determine the appropriate unit of analysis (e.g., individuals, households, organizations).
3) Establish a sampling frame (a listing of the population from which respondents can be drawn).
4) Determine the sample size and the sample fraction (the sample size divided by the total population).
5) Select a sampling technique (e.g., simple random, stratified, cluster).
6) Draw the sample.

Define the Population

The first thing that must be done is to identify the population being examined by specifying the criteria and boundaries that define the population. This is necessary for two reasons. First, it is necessary to clearly identify the population the sample represents (e.g., all residents of the county, members of the industrial association). Second, it is necessary to determine who qualifies for inclusion in the sample and who does not. The definition of the population must be consistent with the unit of analysis and sampling frame that are utilized. In some cases, the population is defined in terms of the sampling frame (for example, all residents of the county with a telephone). Obviously, it is important to make sure that the population is appropriate for the purposes of the investigation and that an accurate description of the population is prepared.

Determine the Appropriate Unit of Analysis

Selection of the appropriate unit of analysis requires consideration of the purpose of the interviews and the feasibility of the mechanisms required to draw the sample. The units of analysis most commonly used in assessment work are individuals (usually adults), households, and organizations. It is important to think through what you want to be able to say as a result of the survey or interview and then to determine

the unit of analysis that would be appropriate or adequate for that purpose. In some cases information is needed for two different units of analysis -- individual adults and households, for example. In these cases, it is especially important to be clear about the sampling technique (for example, sampling households and then sampling from the adults in the households, as opposed to sampling adults from a list of all qualified adults) and to make sure that the questions are asked and analyzed in a consistent manner. For example, if the household is the unit of sampling and analysis, but information is gathered about individuals within the household, this information must somehow be aggregated to the household level in order to be analyzed. Appropriate qualifications need to be applied when utilizing an individual's attitudes in a survey where the sampling and analytic unit is the household or organization.

Establish a Sampling Frame

In order to draw a sample, one must establish a sampling frame which lists the entire population the sample is to represent. Developing a good sampling frame is often one of the most difficult tasks of the sampling process. A sample can only be as representative and reliable as the sampling frame from which it is drawn. Some common sampling frames include the following:

1) Published telephone directories
2) City directories
3) Voter registration lists
4) Platted maps or tax rolls identifying properties
5) Directories of organizations
6) Lists of public utility customers
7) Aerial photographs

Every sampling frame should be evaluated in terms of its correspondence with the defined boundaries of the population, its comprehensiveness, and its currency. Sudman (1976) provides an excellent discussion that is highly recommended for those developing or

using sampling frames. The complete reference is provided in Section 14.8.

Determine the Sample Site and Sampling Fraction

The appropriate sample size is determined by the purpose of the interview/survey, the characteristics of the population (size, variability), and the time and resources available for the work. There is no one "correct" sample size.

There are formulas which can be used to estimate sample size. Sudman (1976), referenced in Section 14.8, provides a clear and concise discussion of the methods used to determine sample size. It should be kept firmly in mind that the process of sampling should serve the purposes of the assessment, not the other way around. It is important to be familiar enough with the procedures to select those that are most efficient and effective for the assessment and to utilize the data correctly and effectively once it has been gathered.

Select a Sampling Technique

Three sampling techniques are commonly used to draw a random sample from a sampling frame. Simple random sampling involves selecting each respondent at random from the entire population. Cluster sampling involves a two-step process. In the first step, clusters (such as census blocks or pages in a telephone directory) are selected at random from the population. Next, respondents are randomly selected from within the clusters. This technique is used frequently in face-to-face surveys, for which costs can be substantially reduced by clustering respondents geographically. Stratified sampling involves organizing the sampling frame to group the population with characteristics of particular importance or interest into different "strata." Each stratum is then sampled separately. This technique is often used to ensure that a sufficient number of respondents with each characteristic are included in the sample to support the desired analysis. If knowledge of the

characteristics of a small group is particularly important, this technique can be modified to sample each of the "strata" as if it were a separate population.

Once the sampling technique has been decided upon, the size of the sample that needs to be drawn can be calculated. Different sampling techniques will generally require different sample sizes.

Several good references on sampling techniques and the analysis of data obtained from samples drawn using different techniques are identified in Section 14.8.

Draw the Sample

After the sampling frame, the sampling fraction, and the sampling technique have been determined, drawing the sample is generally a straightforward task, but one that may be time consuming. As with other aspects of the assessment process, it is recommended that the process be thought out in advance and that the procedures be carefully organized and documented. Throughout the process, it is important to remember that sampling is a tool to be used to ensure that the appropriate information will be collected and is not an end in itself.

14.3.1.2 OTHER SAMPLING PROCEDURES

There are a variety of other, more specialized probability sampling procedures (e.g., cluster or stratified sampling) that can be used. In general, these more elaborate procedures are used to lower costs and to improve the efficiency of the survey effort. Detailed descriptions of these procedures are available in the references included in Section 14.8. The steps for the other sampling procedures are similar to those described above.

14.3.2 Nonprobability Sampling

Nonprobability sampling differs from probability sampling in both purpose and technique. Nonprobability sampling is appropriate when precise representation or estimation of the characteristics of the

population is not necessary and when the data will be used to inform the investigator rather than to conduct statistical tests of hypotheses. Nonprobability sampling is appropriate when the purpose of the investigation is (1) to obtain specific information that is known by only some members of the community, (2) to determine the range of characteristics in a population, or (3) to clarify how various aspects of the community are interrelated. Nonprobability sampling techniques range from those that are highly unstructured (use of available respondents, for example) to those with a substantial degree of structure (theoretical sampling, "snowball" techniques). The technique chosen depends to a great extent upon the type of information being sought and the level of effort that can be expended.

Many of the needs of social assessment are often best met by using "theoretical" sampling, a form of nonprobability sampling. It is therefore recommended that this technique be understood and utilized when appropriate.

14.3.2.1 THEORETICAL SAMPLING

Theoretical sampling is a procedure that can be utilized to insure that the full range of opinions or issues are identified and that information is obtained about the pertinent characteristics of the area. Effective use of theoretical sampling depends upon clear formulation of the objectives of the investigation and upon continual review and analysis of the information that is being obtained. With this approach, people are included in the sample because of who they are and the information they can provide. The purpose of the sampling is to attain a complete understanding of the problem and the range of perspectives, not to make a statement about the statistical distribution of characteristics or opinions. Theoretical sampling is an open-ended process -- investigation and sampling continue until no additional information is needed or until no new information is being gained from additional interviews. Consequently, in theoretical sampling, the sample is not established in its entirety at the beginning of the process, as in many

sampling procedures, but on a continuing basis as the result of previous data gathering and analysis.

Theoretical sampling is an analytic process. It requires sufficient understanding of the social organization model to determine what information is pertinent to the assessment and what characteristics could cause particular people or groups in the communities to differ in terms of opinion, perspective, or knowledgeability about the topics of interest. (For example, changes in grazing regulations could be expected to affect differently, and thus to be viewed differently, by permit holders, people who are not permit holders, feed suppliers, recreationists, etc.). This understanding is used to select the initial sample of persons to be interviewed. The information obtained from these interviews is then used in a similar way to select additional interviewees and to determine additional questions to pursue. The process seeks to ensure that persons with the maximum divergence of opinion and/or positions are included in the sample and that the important issues or information are identified and pursued.

Theoretical sampling can be an extremely useful technique in social assessment. Those unfamiliar with its application are encouraged to read The Discovery of Grounded Theory: Strategies of Qualitative Research (Glaser and Strauss 1967). The full citation is included in Section 14.8.

14.3.2.2 SAMPLING PROCEDURES TO IDENTIFY COMMUNITY LEADERSHIP CHARACTERISTICS

The principal information needs for social assessment often include the identification and description of the community leadership and the delineation of community history, social organization processes, and service provision. This information can often be gathered most effectively by identifying those in the community who are most knowledgeable about these topics and doing in-depth interviews with them, rather than by interviewing a random sample of residents. Respondents capable of providing this type of information are most frequently identified and selected by one of two approaches.

The first, called the positional approach, involves preparation of a list of persons who are holding or have held formal leadership positions (or positions that make them likely to be knowledgeable about the type of information being sought). If the questions being addressed involved leadership, the list would include persons in elected or appointed positions of leadership such as the mayor, city council representatives, county commissioners, state government officials, the city attorney, the school superintendent, law enforcement administrators, directors of planning agencies, and officers in voluntary associations such as unions, fraternal lodges, church organizations, or action groups.

Once the list has been prepared, a procedure must be determined for selecting the interview sample from those on the list. A number of alternatives can be used:

1) Everyone on the list can be interviewed.
2) One or a number of persons can be selected at random from each leadership category.
3) One or a number of persons can be selected from each leadership category based on some criterion or evaluation of knowledgeability, frankness, or other important characteristic.
4) The categories can be weighted by drawing more respondents from some categories than from others.
5) Respondents can be drawn randomly from the entire list.
6) Respondents can be selected from the entire list based on some criterion or evaluation of knowledgeability, frankness, or other characteristic.

The most appropriate procedure will vary according to the particular purpose of the data collection effort and the information requirements.

The reputational approach is similar to the positional approach, but it is based on the development of a list of persons with a reputation for knowledgeability or influence in the area being investigated. A criticism of the positional approach is that it can miss excellent sources by excluding those not in formal positions. The reputational approach is designed to alleviate this problem.

With this approach, the list is compiled by contacting a person in the community who is known to be knowledgeable or influential, explaining the purpose of the procedure, and asking him/her to identify others in the community who would be appropriate respondents ("Who in the community knows most about...?" "Who are the leaders in the community?"). The names are recorded, and each person identified in this way is then contacted in a similar manner and asked to identify other persons who would be appropriate respondents. The process can be terminated when no new names are suggested or after a specified number of contacts have been made.

Once the list has been completed, a sampling procedure must be determined to select persons from the list to be interviewed. The alternatives include the following:

1) Interview everyone on the list (this is feasible only if the number is quite limited).
2) Determine the maximum number of interviews that can be conducted and choose that number of people, starting with those whose names were mentioned most frequently and working toward those mentioned less frequently.
3) Select a random sample of persons on the list.
4) Select a sample of the persons on the list based on some specific criterion such as knowledgeability or membership in a particular group.

In general, the reputational approach will provide a more diverse sample than the positional approach, although in small communities it is common for the positional and reputational approaches to give very similar results. It should be noted that the sampling frame for both the positional and reputational approaches provides useful information about the community that should be incorporated into the analysis.

14.4 Survey Methods

14.4.1 General Issues

Once it has been determined what information is needed, who has the desired information, and how an appropriate sample of respondents can be drawn, the next decision is to select the appropriate survey methods --

the best ways to obtain the information. There are three major methods for obtaining information from respondents:

1) Face-to-face interviews
2) Telephone interviews
3) Mailout (or drop-off and pick-up) surveys

Before discussing the three survey methods, it is necessary to note that the Office of Management and Budget (OMB) places restrictions on surveys. According to OMB Circular A-40, a questionnaire in which ten or more persons are asked identical questions cannot be used without prior clearance by the OMB. In the past, obtaining such clearance has been a laborious and time-consuming process.[1] This restriction is limited to the application of identical questions, however, and does not apply to the use of semistructured or unstructured interviews based on "topical guides" -- an outline of topics to be covered or general questions to be answered that does not specify wording. Such guides can be very effective for obtaining much of the information necessary for a social assessment.

It should be noted that although standardized surveys and large samples have come to dominate much of social science investigation, the types of unstructured survey methods available to the assessor have a long history in the social sciences and are very legitimate techniques. For social assessment, this type of approach is likely to be superior to the use of standardized questionnaires for obtaining much of the desired information. Standardized questionnaires are not sufficiently flexible to be good exploratory tools.

Examples of several interview guides are shown in Section 14-9. References regarding the development of formal questionnaires are provided in Section 14.8.

[1]The Bureau of Land Management (1981) is currently developing a procedure for composing questionnaires from a bank of questions that have received OMB clearance, which could moderate this problem.

14.4.2 Face-to-face Interviews

Face-to-face interviews are the method most commonly used in social assessment work. With this method, the assessor (or interviewer) meets personally with the respondent and asks the necessary questions. The interviewer can utilize an unstructured guide or a formal, structured questionnaire. When unstructured interviews are being conducted, the nature of the interview is often conversational rather than interrogatory.

Face-to-face interviewing has many strengths. High response rates can usually be obtained with this method. Most people will agree to be interviewed and will provide the requested information. One reason for this is that many respondents appreciate having an opportunity to talk with someone about such high interest topics as development, especially if they feel their thoughts and opinions will be brought to the attention of the decision-maker.

An additional advantage of the face-to-face method is that it provides the assessor an opportunity to observe the respondent and to look for indications that questions were not understood, that the respondent was uncomfortable answering the question, or that he or she didn't really know the answer. These visual clues can be very helpful and are very important in assessing the validity and intensity of the response. Face-to-face interviews also provide the assessor with an opportunity to observe the physical environment in which the respondent lives or works. Observations on housing or office type and location, type and quality of interior furnishings, awards or pictures hung on walls, available magazines and books, etc. can provide additional information and insight about the respondent and the community.

A further advantage of the face-to-face method is that extensive interviews can be conducted using this method. Interviews lasting several hours can be conducted, although the normal time span for face-to-face interviews is from forty-five to ninety minutes.

The major disadvantage of the face-to-face survey method is cost; it is the most costly of all the survey methods. Included in the cost of this method are travel time for the interviewer, per diem expenses, low productivity (i.e., fewer interviews per time period), and high call-back costs.

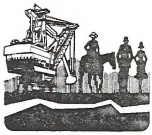
A second disadvantage is that people are becoming more reluctant to open their doors to strangers, regardless of whom the stranger claims to represent, thus causing a decline in the response rate and raising costs. This is particularly true in urban areas, but given national trends, it may begin to occur in energy boom towns and even in rural areas.

One other disadvantage of this method is that it is time-consuming. The assessor is often a "staff of one," which means that his/her time must be used judiciously. Even though this method can be used to establish rapport with community residents, gain legitimacy in the community, and become familiar with community patterns, for many assessments it is unrealistic to plan to conduct numerous face-to-face interviews in each community. As will be discussed below, serious consideration should be given to the use of a combination of survey methods.

Arranging a face-to-face interview is a process in itself. Unless there are unusual circumstances, an appointment for the interview should always be made. This is particularly true if the interview will take more than a few minutes. The appointment should preferably be made a day or two in advance. There are two general methods for making the initial contact. In the first, which is used particularly for surveys involving probability samples, an advance letter is sent to prospective respondents informing them that they have been chosen for interviewing and that a call will follow to schedule the interview. A sample letter is included in Figure 14-2. In the second, an approach more appropriate for informal interviewing, the letter is bypassed and the appointment is made by calling the respondent directly. The drawback of the direct call method for probability samples, which tend to be conducted on an impersonal basis, is that the prospective respondent may be caught off

FIGURE 14-2

Sample Letter Requesting Face-to-face Interview



Social Effects Project

October 14, 1980

Dear

We are requesting your participation in a study we are conducting to gather public information that will be useful in the Fort Union Coal Region Environmental Impact Statement. We are particularly interested in your concerns regarding potential future federal coal development.

The results of this study will be helpful in suggesting areas that may need further examination, as well as being available to decision-makers to aid them in this important process.

Yours is one of a relatively small number of randomly selected households being asked to assist us. Your candid help is crucial to the success of the study and the accuracy of the results. One of our team members will be calling you shortly to arrange a convenient time for a brief interview; either you or your spouse (if you are married) may take part. Your participation is, of course, entirely voluntary, and your comments are confidential. Please be assured that we will come prepared to listen to all of your comments.

We shall be happy to answer any questions you might have. Please don't hesitate to call the team leader, Joe Black, or myself at (XXX) XXX-XXXX.

Sincerely,

guard and fail to fully understand the purpose of the interview, who the assessor is, or who he or she represents and therefore may decline to be interviewed. As a general rule, an advance letter helps prepare the prospective respondent for the call and the interview. The reasons for calling ahead are (1) courtesy, (2) to allow the prospective respondent to be prepared for the interview, and (3) to initiate contact and establish rapport that can make the interview more productive.

14.4.3 Telephone Interviews

As a consequence of the increasing costs and declining response rates for face-to-face interviews, telephone survey techniques have been refined and successfully applied to an increasing range of survey situations over the past decade. This method deserves serious consideration for use in obtaining information for social assessments. The two major advantages of telephone surveys are lower costs and higher speed. Compared to face-to-face interviews, telephone surveys are inexpensive (the major expenses are telephone toll charges, with very small call-back costs) and substantially less time-consuming, since travel time is eliminated. This means that a greater number of interviews can be conducted for the same amount of time and money.

It is true that some sampling bias is generated if published telephone books are used as sampling frames. However, in most rural towns the bias is not large. Most households now have telephones, and most have listed phone numbers, especially in rural areas. In large urban areas, where there are more unlisted numbers, and in boom areas, where there is such a high population turnover that phone books rapidly become outdated and such rapid expansion that many residents are without telephone service, the problems of bias are somewhat greater. Although this bias can be reduced by using random digit dialing techniques, these techniques have drawbacks of their own and are not recommended for assessment work. Considering the uses of the data, the bias created by

using phone books as sampling frames in telephone interviews are generally not serious enough to preclude their use.[1]

Telephone interviews do not have to be limited to a very few questions with specified responses. A well-designed and conducted telephone survey may last for twenty minutes or more. This is especially true when the survey addresses a controversial issue such as energy development, a topic that interests respondents and one on which they have opinions they would like heard.

When conducting telephone surveys, it is suggested that an advance letter be sent to the potential respondent. This letter should indicate briefly what the survey is about, approximately how long the interview will be, and that it will be conducted by telephone. Such advance letters significantly increase response rates and may allow longer interviews to be conducted, since the respondent has some idea of how long it will take. An example of an advance letter for a telephone survey is shown in Figure 14-3.

Both face-to-face and telephone survey methods can be used with structured and unstructured interviews. There is no inherent problem with using either of these methods for unstructured interviews in which all of the questions are open-ended. However, because of the difference in the medium, the two methods require some differences in the way the questions are asked. References to sources that provide guidance on construction of questionnaires for telephone surveys are included in Section 14.8.

14.4.4 Mailout Surveys

The mailout (or drop-off and pick-up) survey method is appropriate only for standardized questionnaires. This limits their use in studies conducted by federal agencies. The format, wording, and (in some cases)

[1]This also applies to the use of telephone books as sampling frames for face-to-face or mail surveys.

FIGURE 14-3

Sample Letter Requesting a Telephone Interview



Social Effects Project

January 28, 1981

Dear

Within a week or so we will be calling you as part of a study we are conducting concerning potential future federal coal development in the Powder River Area. We are particularly interested in your opinions about future federal coal development. The information will be useful for the Powder River Coal Region Environmental Impact Statement and helpful in suggesting areas that may need further examination. Also, it will be made available to decision-makers to aid them in their important decisions concerning possible coal development.

We are writing to you in advance of our telephone call because we have found that many people appreciate being advised that a study is in process and that they will be asked to participate. Altogether the interview should only take about fifteen minutes. If by chance we should happen to call you at an inconvenient time, please tell the interviewer and he or she will be happy to call back later.

You are one of a relatively small number of local leaders being asked to participate in this study. Your candid help is crucial to the success of the study and the accuracy of the results. We greatly appreciate it. Your participation is, of course, entirely voluntary and your comments will be confidential.

If you have any questions, please don't hesitate to call me or Jane Black, who is conducting the study, at (XXX) XXX-XXXX.

Sincerely,

response categories of mailout questionnaires need to be designed specifically to facilitate completion by the respondent. Consequently, mailout and face-to-face questionnaires addressing the same subject will differ in these characteristics. Caution is advised when attempting to utilize questionnaires developed for another survey method -- major modifications may be necessary.

The main advantage of mailout questionnaires is cost. This method has the lowest overall cost of the three survey methods. It also has the advantage of reducing the effects that interviewers may have on responses.

In addition to the disadvantages associated with utilizing a standardized questionnaire, mailout questionnaires have an additional drawback in the length of time required to complete the survey process. In order to achieve an acceptable response rate, up to three follow-up mailings may be necessary. This can extend the time necessary to complete the survey to over two months. Additional drawbacks of mailout surveys for assessment work include generally lower response rates, inability to ensure that the designated household member completed the form, and high item nonresponse rates. These drawbacks make the mailout survey method the least desirable for assessment work.

14.4.5 Summary

Knowledge of sampling and survey methods is important for implementing the assessment process described in the guide. Whether one needs only to interview a few community leaders or to do more extensive interviews with a larger random sample, decisions must be made about who is to be contacted and how the information is to be obtained. To be most effective and to best utilize the time and resources available, serious consideration should be given to utilizing a combination of sampling and surveying methods. It is likely that face-to-face interviews with some community members will be necessary. Telephone interviews may be appropriate for gathering other types of information or for clarifying information already gathered in face-to-face interviews. The question which

the assessor must ask when designing the primary data collection effort is: What survey methods will provide the best information at the lowest cost?

14.5 Development of Topical Guides

Although questionnaire constuction will not discussed here, a few comments about how to develop and use a topical guide are in order. Topical guides are simply lists or checklists of the topics that will be covered in the interview. A topical guide does not indicate specific questions to be asked, nor does it require answers to be given or recorded in predetermined response categories. Topical guides serve as a mechanism for identifying and organizing the information that needs to be obtained during the field trip or interview (and thus is essential for planning the field trip or survey and for determining the appropriate sampling and survey methods), for prompting the interviewer to cover the important topics during the interview, and for organizing the documentation of information obtained from the interview. Several examples of topical guides that have been used in social assessments are shown in Section 14.9.

14.6 Interviewing Techniques

An important element in gaining useful and valid data is the development of good interviewing techniques. As with sampling and survey techniques, there is a well-established literature on interviewing. The assessor is strongly encouraged to become familiar with the literature cited at the end of this chapter and to develop and practice good interviewing skills.

Interviewing involves two principal tasks:

1) Formulating and asking questions
2) Understanding and recording responses

14.6.1 Formulating and Asking Questions

An effective interview results when the questions asked of the respondent are:

1) Pertinent to the assessment;
2) Appropriate for the respondent, which means that the respondent has the information that is being sought;
3) Stated clearly, so that the respondent understands them; and
4) Presented in a manner that encourages accurate and complete response.

14.6.1.1 FORMULATING QUESTIONS PERTINENT TO THE ASSESSMENT

Throughout the assessment process, the assessor must constantly strive to identify and formulate questions that will yield the information needed to forecast and evaluate the effects of the proposed action in a manner useful to the decision-maker. If interviewing is to be used as part of a structured questionnaire, the questions must all be formulated well in advance of the interview. It cannot be stressed enough that the questions to be asked must result from careful analysis of the assessment purpose and the available information and that they must serve a specific analytic purpose. When developing interview guides or questionnaires, it is essential that careful attention be given to the analysis and utilization of the responses. It is especially important that questions be asked for a specific purpose in structured interviews, where modification and expansion of the questions are precluded.

When informal interviews are being conducted, there is greater opportunity to formulate questions based on the information being provided in the interview or from other sources. Topics may arise in an interview that should be pursued. Formulating pertinent questions in these circumstances requires a clear understanding of the purpose of the assessment and a continual analysis of the information being obtained. Good interviewing requires thought, both in preparing for the interview and in conducting it.

14.6.1.2 ENSURING THAT THE QUESTIONS ARE APPROPRIATE FOR THE RESPONDENT

Throughout the interview, it is important to monitor the respondent's ability to provide the information being requested. Persistently asking respondents about topics for which they have no information not only wastes time and resources; it can annoy, bore, or frustrate the respondent and jeopardize the effectiveness of the entire interview. For structured surveys, sampling procedures should be coordinated carefully with questionnaire design to prevent selecting inappropriate respondents or requiring long series of questions that may be appropriate for only a portion of the respondents. For unstructured interviews, the interviewer must be sensitive to clues that the questions or topics are not appropriate and be prepared to adjust the focus of the questions accordingly. (The fact that a respondent does not have information that he/she was expected to have can be revealing and should be noted.) In such cases, it is often useful to summarize the type of information being sought to determine which topics (if any) are pertinent and to solicit suggestions about where the other information could be obtained.

14.6.1.3 STATING QUESTIONS SO THEY CAN BE CLEARLY UNDERSTOOD

In order to obtain a valid response, questions must be accurately communicated to the respondent. This means that the questions must be formulated and worded clearly, using concepts and terminology familiar to the respondent. The difficulty of this task should not be underestimated, and it is one reason to allocate sufficient time and effort to the development of the questionnaire or interview guide. Particularly difficult questions (regarding community social organization, for example) may need to be formulated in several different ways. In face-to-face interviews, the interviewer should watch for indications that the question has not been understood so that clarification can be made or the response can be interpreted accordingly.

Questions may need to be formulated differently for the different survey methods. Jargon and technical language should be avoided. The interviewer should speak clearly and loudly enough to be heard easily. A need to repeat questions can detract from the interview and result in

invalid responses and should be taken as an indication that the formulation or presentation of the questions needs be modified.

Throughout an interview, the interviewer should be alert for clues that the respondent has not understood the question as it was intended and then should either restate the question, restate or summarize the answer (to confirm that the response was understood correctly and that the respondent intended to answer the question that way), or note that the response should be interpreted with caution.

14.6.1.4 CONDUCTING THE INTERVIEW TO ENCOURAGE ACCURATE AND COMPLETE RESPONSES

The manner in which an interview is conducted and the way questions are formulated can have great influence on the respondent's willingness and ability to provide accurate and complete information. Biased questioning produces biased information. It is very important to analyze the wording, sequence, and intonation of questions to guard against the introduction of unintentional bias and to be alert for questions that are likely to elicit a socially desirable response. It is helpful to examine each question from the perspective of the respondent to determine whether it "requires" or leads to a particular response. If it does, it probably will yield little helpful information, may be misleading, and should either be dropped or reformulated.

Even with the best questions, interactions between the interviewer and the respondent can affect the respondent's ability or willingness to answer accurately and completely. The interviewer needs to be sensitive to the effects of age, sex, education, and organizational affiliation on the interview. Although these effects cannot be completely eliminated, they can be minimized by the manner in which the interview is conducted. To be effective, an interviewer needs to be continually sensitive to the perspective of the respondent and to his or her own ability to shape the responses by the wording of questions or by emphasizing certain topics.

14.8.2 Understanding and Recording Responses

Obtaining accurate and complete information from interviews requires not only that questions be asked clearly, but that the answers be understood and recorded correctly. Interviewing requires good listening skills. The interviewer must listen for what is said, not what is expected to be said. This is hard work and requires that the interviewers be well prepared, since it is particularly difficult to listen carefully when distracted by the need to figure out what question to ask next or to record the response.

Careful listening serves three important functions. First, it ensures that the response made to the question is accurately understood. This is of obvious importance. Second, it encourages the respondent to answer carefully and completely by conveying that the response is being taken seriously. Third, in unstructured interviews, it allows the interviewer to identify and pursue information about important topics that have not previously been raised.

Documentation of interview results is an important part of the interviewing process. Responses need to be recorded in sufficient detail to ensure accurate representation of the respondent's answer for coding or later elaboration. As is the case when listening or asking questions, it is important to guard against bias or selectivity in recording the responses. One good way to check for bias in listening and recording is to double up on interviews, having two people record the responses from an interview and then compare notes and perceptions afterward.

An interviewer is always placed in somewhat of a dilemma. The need to listen carefully, maintain eye contact, and create a comfortable interviewing climate conflicts with the need to record the response thoroughly and accurately. Experienced interviewers generally follow one of two strategies.

One technique is to prepare an interview guide/questionnaire that facilitates the recording of brief notes (stressing the key points made about each topic) during the interview and that can also be used to either record a more complete discussion or serve as an outline for the preparation of a detailed conversation report. It is important that a complete record be prepared as soon after the interview as possible, preferably before the next interview is conducted. Time must be allowed in the interviewing schedule for this effort. Instead of writing out the complete conversation report, some people prefer to record the interview, using a tape recorder, for later transcription. The latter approach requires some practice and adequate transcription support, but it can save valuable field time and result in more complete conversation reports.

The other strategy, which often is not feasible but works well, is to have two people involved in the interview, with one person asking the questions and the other recording the responses. For really key interviews where a lot of information is obtained, this approach is very desirable.

Interviews are sometimes tape recorded in their entirety. This approach is not generally recommended for impact assessment work because it (1) tends to create a strained atmosphere for respondents not accustomed to being interviewed, (2) tends to inhibit respondents from making candid evaluations of controversial issues like leadership and community coordination, and (3) generates an unwieldly amount of information that is costly and time-consuming to put into a usable form.

Especially on federal projects where information may be subject to disclosure though the freedom of information act, the interviewer should be cautious in extending guarantees of confidentiality to respondents and should be circumspect in documenting interview results.

14.7 Data Analysis

At some time in the assessment process, the need will arise to analyze the data that has been obtained either from the primary data collection effort or from secondary sources. As has been emphasized throughout this chapter, this need must be anticipated early in the process -- the entire information collection and analysis effort must be carefully thought out before the data collection effort is designed and initiated.

The design and execution of an appropriate analytic approach involves five general steps, each of which is discussed below.

1) Clarification of the purpose and use of the data -- what do you want to be able to say?
2) Review of the data collection procedures and assessment of the quality and limitations of the data -- what can be said, given the type of data?
3) Preparation of the information/data for analysis.
4) Analysis of the data.
5) Interpretation and use of the results.

14.7.1 Clarification of the Purpose and Use of the Data

In order for the sampling procedure, survey method, questionnaires/interview guides, and analysis to be designed effectively, information needs must be clearly analyzed and understood. This requires the assessor to work through the assessment process and determine what information is needed and how it will be used. As discussed previously in this chapter, this preliminary work must be very specific if it is decided that a probabilistic sample and a structured questionnaire are to be used. In this case, a very specific plan for the use of each piece of information to be obtained from the survey must accompany the design of the questionnaire itself. If not, it is very likely that information will be collected but not used, and that important information will be omitted or obtained in a less than optimal form. The same requirements hold for the compilation and analysis of secondary data.

Informal interviewing based on theoretical sampling has equally rigorous, but sequentially different, requirements. With theoretical sampling, the objectives of the research must be clearly understood at the outset, but the data is analyzed as it is obtained to inform the research effort.

The appropriate research design and analytic approach are determined by the questions that are to be answered. If the questions are primarily descriptive (What are existing patterns and recent trends?), the appropriate analytic approach will be primarily descriptive and will be likely to focus on frequencies (the number and percentage of respondents with each characteristic or expressing each view) and cross-tabulations (calculation of the number and percentage of respondents having a particular combination of characteristics). If the questions are primarily analytic (Do two different groups of respondents differ? Why?), the analysis will focus on tests of relationships and differences.

In impact assessment, the purposes of data analysis tend to be primarily descriptive and are associated with description of the existing environment and recent trends. Those intending to test hypotheses or analyze their data for other purposes are encouraged to read Davis (1971), referenced in Section 14.8. The discussion here will focus on analysis of primary or secondary data for use in the assessment effort itself.

14.7.2 Review of Data Collection Procedures and Data Quality

The analysis of data is guided by the quality of the data itself. Indeed, examination of the data to determine its quality is often considered part of the analytic process. There is little point in conducting an analysis that "goes beyond" the data. The quality of data can be affected by the sampling procedures utilized to select respondents, by the collection procedures utilized to obtain the data, and (for secondary data) by the coding procedures utilized to transform the data into usable categories. Sample size can also affect the usefulness

of the data for some types of analysis. Small sample sizes (or large samples that are divided into numerous subgroups that have been asked a variety of different questions) can limit the types of analysis that are appropriate. For the generally small sample sizes and highly variable topics that frequently result from informal interviewing (particularly from theoretical sampling) and for the purposes of most assessment work, relatively straightforward analytic techniques are generally the most appropriate. During this step it is useful to consider what can be said about population characteristics, given the sampling procedures and types of questions. Unless the necessary procedures have been followed, generalization about the population will not be possible. Understanding this limitation can influence the decisions regarding the design of the analysis as well as use of the data.

14.7.3 Preparation of the Information/Data for Analysis

In many cases the information available from secondary as well as primary sources will require compilation and manipulation before it can be analyzed. This generally involves development of a format and procedure for organizing the information and reducing it to a set of numbers that can be analyzed.

For primary data this requires the development and implementation of a coding scheme. The process by which information (for example, responses to a question) are evaluated and placed into an appropriate category is called coding. Coding reduces the data to a manageable and standard form so that the responses from one interview or source can be compared to those from another. Quite obviously, it is important that the coding scheme effectively reduce the information to a usable form without distorting or biasing it in the process.

The first step in developing an effective code is to either think through all possible responses or read through the interviews (or a sample of them, if the number is large). The next step is to determine a set of response categories that would cover the range of responses that could or have been made. Codes must be designed so that each

response can be placed in one and only one response category. The response categories must be appropriate for the data -- they must reflect the range and nature of the responses or they will distort the information. The third step is to think through the use of the data to determine how the response categories can best be organized or grouped. The response categories, or code, must also be appropriate for the purposes of the analysis.

When formal questionnaires are used, many of the questions incorporate the code into the statement of the question (so-called "closed-ended" questions). This process occurs before the data are collected, which places an additional burden on the designer of the questionnaire to ensure that the response categories allow respondents to accurately express their views. When informal interviews are conducted, most questions are "open-ended" in that no response categories are suggested. In this case, the code can be derived from the responses themselves.

One particularly appropriate method for coding information from informal interviews is called content analysis. Content analysis provides an objective and systematic method to abstract the information from interview or other narrative data. To conduct a content analysis, a sample of interviews (or all interviews or materials being analyzed, if the number is not large) are read carefully to provide familiarity with the nature and range of topics and responses that have been covered. From this a coding scheme, which provides a set of response categories for each topic, is developed. An essential feature of content analysis is that the data inform the analysis. The appropriate portions of the interviews are then coded and thus reduced into a form that can be easily examined and analyzed.

Once the data have been coded, they can be either entered into a computer file for analysis or utilized for hand compilation or calculation.

14.7.4 Analysis of the Data

For impact assessment, the major purpose of the analysis will be to provide descriptive information about existing conditions and attitudes and to describe trends. In many cases, the analysis will focus on comparisons (this group compared to that group, this community compared to another, this year compared to last). For this type of purpose, some form of percentage analysis is frequently the most appropriate.

Percentage analysis, when presented in conjunction with the actual numbers to demonstrate sample size, standardizes results so they are directly comparable. An additional advantage of percentage analysis is that it is understood by a wide audience, something that is often not true of the more sophisticated analytic techniques. Zeisel (1968) presents a good discussion of percentage analysis (see Section 14.8 for complete citation).

If the available data or the assessment's purpose allow more extensive data analysis, the opportunity should not be wasted if it will contribute to a more informed forecast and interpretation of the probable social impacts. It should be recognized, however, that complex analysis is both time-consuming and expensive and that it must be carefully thought through to ensure that both the data and the information needs warrant the analytic effort. There are a wide variety of references that discuss all aspects of quantative analysis (see Section 14.8).

14.7.5 Interpretation and Use of the Results

The final step in the analytic process is to interpret the information, identifying patterns and characteristics that can be incorporated into the forecasts of social impacts. If the data are to be presented, it is essential that they be accompanied by a discussion of their limitations and meaning. The basic question that must be addressed in this discussion is, What types of inferences can be made from the data?

If the data are from secondary sources or from interviews of persons selected on a nonprobability basis, inferences can generally be made only at the level of the data and not generalized further. It is at this point that comparison between different data sources can be used to increase the generalizability of the conclusions.

In presenting the results of a survey using either (or both) nonprobability sampling procedures or topical guides, it is very important that these methods and the appropriate use of the data be explained clearly and explicitly. Great care must be taken in the presentation of the results; the wording of the presentation is critical. A misunderstanding of the result or their implications can jeopardize the credibility and defensibility of the assessment.

14.8 Recommended Reading

14.8.1 General Survey Research Methods

Social science methodology textbooks can provide a good place to start. These textbooks usually have chapters on sampling, survey techniques, and interviewing. Some recommended textbooks include the following:

Denzin, Norman K.
1970 The Research Act. Chicago: Aldine Press.

This book discusses a variety of research methods, many of which are applicable to assessment work.

Goode, William J., and Paul K. Hatt
1952 Methods in Social Research. New York: McGraw Hill.

A little "old," but still a classic in the field of methods with a lot of good information.

Galtung, Johan
1969 Theory and Methods of Social Research. New York: Columbia University Press.

At times this book gets a little difficult to read, but it can provide some valuable insights that make it worth the effort.

Kerlinger, Fred
1973 Foundations of Behavioral Research. 2nd ed. New York: Holt, Rinehart, and Winston.

Perhaps one of the best methodology textbooks. Well written, a good place to start.

Seltiz, Clare, Lawrence S. Wrightswan, and Stuart W. Cook
1976 Research Methods in Social Relations. 3rd ed. New York: Holt, Rinehart, and Winston.

Another good and well written methodology textbook.

14.8.2 Survey Research

There are many books that concentrate strictly on survey research. Recommended ones include the following:

Alwain, Duane F.
1978 Survey Design and Analysis: Current Issues. Beverly Hills, Calif.: Sage.

A collection of papers on different aspects of survey research. Chapter 1 is very good.

Babbie, Earl R.
1973 Survey Research Methods. Belmont, Calif.: Wadsworth.

An excellent introduction to the field of survey research. Comprehensive without being overly technical.

Backstrom, Charles H., and Gerald Hursch
1963 Survey Research. Chicago: Northwestern University Press.

A short introductory book, not as comprehensive as Babbie.

Hyman, Herbert H.
1955 Survey Design and Analysis: Principles, Cases, and Procedures. Glencoe, Illinois: The Free Press.

A classic in the field.

Moser, C.A., and G. Kalton
1972 Survey Methods in Social Investigation. 2nd ed. New York: Basic Books.

A good handbook for reference with a helpful discussion on the design of surveys.

14.8.3 Sampling

There are several books on sampling, but few on nonprobability sampling. A few references for both are included below:

Cochrane, William G.
1977 Sampling Techniques. 3rd ed. New York: Wiley.

Deals with probability sampling of various designs. Assumes a good background in algebra.

Glaser, Barney G., and Anselm L. Strauss
1967 The Discovery of Grounded Theory. Chicago: Aldine Press.

Chapter 2 of this book discusses "theoretical" sampling, a good nonprobability sampling technique. This whole book could be profitably be read by anyone doing social assessment.

Mendenhall, William, Lyman Ott, and Richard L. Schaeffer
1971 Elementary Survey Sampling. Belmont, Calif.: Duxbury.

This book covers probability sampling at a slightly less technical level than Cochran. Chapters 1-3 provide a good introduction to sampling procedures and concepts.

Schuesller, Karl
Sampling in Social Research. Engelwood Cliffs, N.J.: Prentice-Hall.

A good, rather nontechnical introduction to sampling that covers most of the important topics.

Sudman, Seymour
1976 Applied Sampling. New York: Academic Press.

An excellent practitioner's book on sampling. Chapters 1-3 are particularly recommended.

14.8.4 Telephone and Mail Surveys

There are two recent and useful books on mail and telephone surveys.

Dillman, Don A.
1978 Mail and Telephone Surveys: The Total Design Method. New York: Wiley.

An excellent book all around, it has an especially good bibliography on the issues regarding use of these two survey methods.

Groves, Robert M., and Robert Kahn
1979 Surveys By Telephone. New York: Academic Press.

Compares responses to telephone interviews using random digit dialing and personal interviews.

14.8.5 Interviewing

There is a large literature on interviewing. In addition to the information provided in the general methodology books, good discussions are included in the following:

Cannell, Charles F., and Robert L. Kahn
1968 Interviewing. In Handbook of Social Psychology, Vol. II, 2d. ed., G. Lindsey and E. Aronson, eds., pp. 526-95. Reading, Mass.: Addison-Wesley.

Hyman, Herbert, et al.
1954 Interviewing in Social Research. Chicago: University of Chicago Press.

Richardson, S.A., Barbara S. Dohrenwend, and D. Klein
1965 Interviewing. New York: Basic Books.

14.8.6 Methods to Identify Community Leaders

Procedures for locating community leaders have been discussed extensively in the literature. Some helpful references include:

Aiken, Michael, and Paul E. Mott, eds.
1970 The Structure of Community Power. New York: Random House.

Has chapters that present and criticize the different ways to locate community leaders.

Hawley, Wills D., and Frederick M. Wirt, eds.
1968 The Search for Community Power. Englewood Cliffs, New Jersey: Prentice-Hall.

Contains some articles on locating leaders. Especially interesting is the article by Freeman, et al.

Lawmann, Edward O., and Franz U. Pappi
1973 New Directions in the Study of Community Elites. American Sociological Review 38:212-30.

Demonstrates a useful method of finding community leaders. These two authors also published a book entitled Networks of Collection Action (New York: Academic Press, 1976) that provides a good understanding of community decision making and influence.

14.8.6 Data Analysis

At some time, the data that has been collected will have to be analyzed. Since much of the data will often be in the form of responses

to open-ended questions, the best method is content analysis. Two good books with good bibliographies are the following:

Holstie, Ole R.
1969 Content Analysis for the Social Sciences and Humanities. Reading, Mass.: Addison-Wesley.

Krippendorf, Klaus
1980 Content Analysis: An Introduction to Its Methodology. Beverly Hills, Calif.: Sage.

If the assessor has quantitative data from secondary sources or from standardized questionnaires, a useful discussion of data analysis methods can be found in the following:

Davis, James A.
1971 Elementary Survey Analysis. Engelwood Cliffs, N.J.: Prentice-Hall.

Zeisel, Hans
1968 Say It With Figures. 5th ed., rev.. New York: Harper and Row.

A good book on percentage data analysis and presentation.

14.9 Interview Guides

On the following pages, examples of various interview guides are shown.

14.9.1 Example Interview Guide: Random Sample

Respondent's Name _____
Date _____
Time In _____
Time Out _____

Introduce yourself and establish rapport with respondent. Review purpose of the interview. Remind the respondent that all their responses are voluntary and confidential.

Show map. Explain that this is the area of potential Federal coal leasing.

Lease coal

Why/why not

Preference

Concerns

Effects of past mineral development
On person

Family

Community

Effects of additional coal mining
On person

Family

Community

Explain that there are proposals to locate, near some of the coal mines, facilities that would use the coal in North Dakota (power plants, coal conversion).

Favor or oppose

Why

Preferences

Concerns

Random Sample (Cont.)

Effects of these facilities
On person

Family

Community

Environmental/Social Economic

National Goals

Explain to the respondent that you would like to ask some questions about the community (or local area).

Community identification (if rural)

Length of residence

Likes of area

Dislikes of area

Service satisfaction

Additional services

Quality of life
Probe: rank if items given

Explain to the respondent that you would now like to ask a few questions about themselves. Remind the respondent that their answers are voluntary and confidential.

Race (write in)

Sex (write in)

Occupation

Education

Age

Marital status

Make life satisfying
Probe: rank if items given

Random Sample (Cont.)

Let the respondent have a chance to make additional comments. After that, thank them for their time and cooperation.

Copy of report _____

14.9.2 Example Interview Guide: Community Leaders

Respondent's Name _____
Date _____
Time In _____
Time Out _____

Introduce yourself and establish rapport with respondent. Review purpose of the interview. Remind the respondent that all their responses are voluntary and confidential.

Show map. Explain that this is the area of potential Federal coal leasing.

Lease coal

Why/why not

Preference

Concerns

Effects of coal mining
 Community

Services/facilities

Community/capacity

Explain that there are proposals to locate, near some of the coal mines, facilities that would use the coal in North Dakota. (Power plants, coal conversion)

Favor or oppose

Why

Preferences

Concerns

Additional effects on community

Services/facilities

Community capacity

Environmental/social/economic

National goals

14.9.3 Example Interview Guide: Agency Interviews

Interviews with Service Agencies
(school, social services-welfare, law enforcement, public health, mental health, judge if possible)

Schools

1) Introduce yourself and explain purpose -- want to know how community addressed each of the needs that occurred during period of rapid growth (or last five years).
2) Review population data and causes of growth.
3) Review school data (have copy ready for them)
 Make any corrections/additions or comments. If data not available locally, find out where it would be.
4) How has demand changed? Why? (esp. energy growth)
5) Has classroom space been adequate and available when needed to meet demand? If not, when was problem period? Why was there the problem? How was it resolved?
6) What important changes have occurred in the areas of? Was that a problem? How were problems addressed? What are concerns for future?
 -- curriculum/education approach
 -- staff
 -- student behavior and characteristics - probe esp. for transiency (check availability of turnover rates)
 -- administrative procedures
 - any special programs for newcomers
 - any special problems created by newcomers
 - any changes due to growth
 -- financing
7) What school-related changes or issues have there been that drew public interest or participation? (e.g., consolidation, new school construction, etc.) Point is to articulate public decision-making process. What are concerns?
 -- Who, when, what, how, why. Who were the parties involved,
 -- Who was not involved who logically should have been?
 -- If there were factions, identify issue and probe for recurrence and for names of prime actors on both sides.
 -- Was there a point when problems started being addressed in a new way? When? Why?
8) At the beginning of the growth period (or 10 years ago), who were the influentials in the community?
 -- How has that changed? What was energy development's role? Who were key decision-makers for community during growth period?
9) Check for changes in extra-local linkages (source of funds, contacts, source of teachers in-service, etc.)
10) In their opinion, were there groups in the community that have been (or would be) affected differently by the growth and energy development?
 -- Both positive and negative

Agency (Cont.)

-- Who, how and why (seek mechanism and understanding of change and community structure that distributes effects/opportunities)
(prompt for employment, housing, services, schools, way-of-life)

11) Functional groups and social differentiation:
-- try to get a description of criteria for social differentiation (in pre-growth period if there was one) and of each of the major groups (size, livelihood, geographic location, ethnicity, property ownerships, relationships between groups) How has that changed? (Criteria, groups or group characteristics). The purpose is twofold: (1) to describe structural/organization characteristics of community and (2) to identify attributes of groups that could influence distribution of project effects. Get names of group representatives. (Important for interviewing but also to illustrate familiarity with different strata.)

12) Demographic characteristics of respondent
-- position and history of employment
-- length of residence in community
-- where from
-- family characteristics
-- age
-- sex
-- relationship to energy development

Law Enforcement

1) Introduction
2) Review growth data
3) Review Part 1 and Part 2 crime and service provision
-- reported crime
-- calls for service
-- budget
-- uniformed officers and personnel
-- cars
4) Did crime and/or calls for service increase during growth period? What are expectations?
-- what types of crime(s)
-- who were (will be) perpetrators?
-- who were (will be) victims? Did (will) crime occur in particular neighborhoods/areas?
-- what do they think was (or will be) reason for change?
-- (Sheriff, what about specific county problems -- trespass, poaching, cattle rustling, etc. what is county people's view?)
5) Service provision
-- Were (will) personnel and equipment (be) adequate?
If not, when was it inadequate?
Why was it inadequate?
-- What important changes have occurred (or are anticipated) in their department?
- staff

Agency (Cont.)

- administrative procedures
- manner of enforcement
- source of financing

6) What law enforcement changes (or issues) have there been that drew public interest or participation? (e.g., new jail, consolidation of enforcement) Object is to articulate public decision-making, and to discuss sequence of response by community and leaders re: energy-related demands)
7) At beginning of growth period, who were the influentials? How (and when) did that change? What was role of energy development?
8) Check for changes in extra-local linkage.
9) Ask about groups and distribution of growth effects to different groups. Check especially for relationships among groups. Ask if they know representatives from each group that could be interviewed.
10) If appropriate, ask personal intervew questions:
 At least get demographic characteristics
 -- position and history of employment
 -- length of residence in community
 -- where from
 -- family characteristics
 -- age
 -- sex
 -- relationships to energy development

Social Service/Public Assistance and Mental Health

1) Introduction
2) Review growth pattern and causes
3) Review agency data structure of agency
 -- by type of assistance: total annual expenditures
 expenditures per 1,000 population
 case loads
 staff levels
4) How has demand for service changed?
 Why? Change in use patterns by long-time residents? Why?
 Different use patterns by newcomers? Why? How are these reflected in the data?
5) Have staff and resources been adequate and available when needed to meet demand? If not, when was problem period? Why was there the problem? How was it resolved? Have they received adequate support from state?
6) What important changes have occurred (or are anticipated) in the areas of What is their view on source of change? Any data?
 -- child abuse and neglect
 -- marital discord, spouse abuse, divorce
 -- alcoholism

Agency (Cont.)

7) What public service/assistance-related changes or issues have there been that drew public interest or participation? Describe issue, when it occurred, who played what roles, what was outcome, how does that fit into overall decision-making pattern in community? Was there a point (in growth period) when decisions started being made in a new way or by different people?
8) Who were influentials at beginning of growth period? How has that changed? What was energy development's role? Get names of really key individuals re: community actions
9) What distinguishable groups are there in the community? What are criteria for social differentiation? What are distinctive attributes of each group? How would one characterize relationships between groups? What about prior to growth? (Any particular neighborhoods?) Names of people who could discuss each group.
10) Have groups been affected differently by growth? Especially energy development? What about inflation? How have effects of energy development been distributed among groups? How has that occurred?
11) Demographic characteristics of respondent
 -- position and history of employment
 -- length of residence in community
 -- where from
 -- family characteristics
 -- age
 -- sex
 -- relationship to energy development

14.3.4 Example Interview Guide: Group Representatives/General Population

Introduction

Personal biography

1) Background (family, where lived)
2) When came to community
3) Educational history
4) Occupational history, esp. during 1970s
 -- occupational mobility/immobility
 -- energy-related employment
 how did (would) they get it? entrepreneurial - ask about financing, business style and expansions
5) Housing - price or availability
6) Family history
 family and employment history of spouse
 school experience of children
7) Service provision - any problems? evaluation-compare predevelopment with now.
8) What recreational/social activities available and used; compare predevelopment (or future) with now.
9) Who are their friends, occupation - length of residence, location - how did they become friends? Change during study period?

9a) Who are their children's friends?

10) How were friends affected by development?
11) How about others in the community?
 What other groups do they see?
 Were any affected differently? How?
12) Have newcomers been accepted as part of the community? Examples of interaction between longtime residents and newcomers; between various groups.
13) How do they feel they personally have been affected (or anticipate)?
14) How do they feel their neighborhood has been affected (or anticipate)?
15) If parents are in community, how have they been affected (or anticipate)?
16) What changes have occurred in the community (or anticipate)?
 What effects have there been from energy development (or anticipate)?
 Probe child abuse
 -- change in decision-making
 -- change in orientation/focus
 -- sense of vitality
 -- sense of community purpose
17) General satisfaction with expected changes
18) If good spokesperson for their group
 -- Profile of group predevelopment
 - livelihood
 - size

Group (Cont.)

- location (residential)
- property ownership
- demographic characteristics
- special needs
- inter-group relationships
- position in community and relationship with other groups

-- Distribution of effects

- employment and income
- size
- demographic characteristics
- housing
- facilities/services
- decision-making
- relationship with others

-- Profile now

14.9.5 Example Interview Guide: Decision-Maker Interviews

The purpose of these interviews is to describe the evolution of community-level response to the demands of growth. In addition to this description, the purpose is to be able to determine how pre-growth community and decision-making characteristics influenced (or will influence) the response pattern and how the modification of the decision-making process has affected (will affect) community-level decision-making both during and after rapid growth. Of particular interest is the role and utilization of legislation, especially legislation developed for impact mitigation.

1. Introduction
2. Review chronology and source of growth (complete Figure 3)
3. Rapid growth creates some major needs and changes in a community. Discuss how the community addressed some of the major ones. Ask about ones already identified, but pursue others they identify.
 1) Schools
 -- Building new facilities -- how did votes come out on major bond issues? Why? Were they able to raise adequate funds? What were problems?
 Why did they occur?
 How were they addressed? Who?
 Were they solved? Will they occur again next time?
 What role did state actions/legislation play in response?
 -- How did response evolve over study period? How did the changes affect how things are done now? Was there a point when decisions or community response was approached in a new or different way?
 2) Housing
 -- How did housing response occur? How was it coordinated? What were the problems? (probe financing and zoning and legislation)
 Why did they occur?
 How were they addressed? Who?
 Were they solved? Will they recur next time?
 Role of state actions/legislation
 -- How did response evolve over study period? How do the changes that occurred affect how things are done now?
 3) Planning and zoning
 What is history of planning and zoning?
 -- How and when did formal planning and zoning get started and staffed?
 -- What role did it play throughout study period?
 -- What were problems? or key decisions?
 - How did they occur
 - How were they addressed - by whom
 - Were they solved or will they recur
 - What role did legislative actions play?
 - How did response evolve over time?
 What use was made of legislation? Where did initiative come from? Was there resistance?

Decision-makers (Cont.)

4) Public works
 Discuss major decisions as above
5) Law enforcement
 As schools
6) Animal control
 What have they done? How and why? How successful?
7) Review how and when state acts designed to assist with the impacts of energy growth have been used. How important have they been? (e.g. for Wyoming: (1) sales tax (2) farm loan board (3) joint powers acts (4) industrial siting (5) severance tax)
8) In respondent's opinion, how much local control has (will) the community been (be) able to exercise over the important decisions and actions that affected it during growth period?
 -- was prewarning adequate and accurate (information)?
 -- cooperation from project sponsor? Describe how and why
 -- was uncertainty about reality of development a problem? How, why?
 -- been able to work with state in handling problems?
9) Clarify their perception of the role and importance of state involvement and of large non-local corporate involvement in the community economy/affairs who initiated? What effect now? Future?
10) How has (will) the political leadership and government structure in the community changed? regarding city council, county commission, county chairman of political parties?
 -- Have there been any changes as a direct result of energy development?
 -- Any that are particularly important to community's response or ability to respond?
 -- Have companies participated? How?
 -- Have (will) community leaders been (be) willing to address problems and take action? Why not, what was (will be) impediment?
 -- Has (will) conflict of interest been (be) important in shaping community response, either in terms of actions taken or public trust/community support?
11) If business person or banker:
 -- Was there (is there anticipation of) a shortage of financing for either businesses or consumers during the study period? Why? How was (will) it (be) addressed? What effect did (will) it have? Where do locals bank?
 -- Has banking structure in the community changed? In what way? Why?
 -- Did banking policies and practices change during the study period?
 -- What role, if any, did energy companies play in banking, local (vs. nonlocal) businesses?
12) Demographic characteristics
 -- occupation and previous employment history
 -- length of residence in community
 -- origin

Decision-makers (Cont.)

-- family characteristics (including other relatives)
-- age
-- sex
-- relationship to energy development

13) Check to see if they feel any pertinent information has been neglected

14) Names of other people to talk to
-- influentials
-- group representatives
-- administrative leaders

15. Use of Secondary Data and Sources

15. Use of Secondary Data and Sources

15.1 Introduction

Research information is generally divided into two categories: primary data and secondary data. Primary data is information that is generated and compiled for a particular project. Secondary data is data that has been collected for another purpose. Social assessments utilize both types of information. This chapter identifies and discusses some of the major secondary sources and how they may be used in a social assessment. Secondary data can be used to supplement and validate primary data and to cover topics for which it is not feasible to collect primary data. Secondary data can often be used to help focus the assessment by narrowing the questions that need to be asked. It can also help answer many important questions, thereby reducing the requirements for primary data collection and enhancing the validity of the analysis.

15.2 How Secondary Data and Sources Can Be Used

Secondary data can be used in two principal ways: descriptively and analytically. Secondary sources can often help describe the characteristics of the existing environment by providing information about historical trends and present conditions. Census data or attitude surveys, for example, can be used to develop a profile of important community or area characteristics. Comparison of data collected at different times (for example, the decennial censuses for 1960, 1970, 1980) can provide information about the stability or variability of community characteristics in the recent past and about the patterns of changes that have occurred (trends).

Census data, environmental impact statements, agricultural experiment station bulletins, state reports, and local newspapers and histories can be very valuable sources of descriptive information. These, plus any other pertinent studies that have been conducted, can provide information about the community, the area, past development,

particular controversies or issues, etc., that broadens your perspective on the study area communities and aids in the assessment effort.

The second use of secondary data is analytic. Secondary sources can be used to analyze what type of information is likely to be important, what types and magnitude of social impacts are likely to occur, and what meaning they might have for the community and its residents. Sources such as previous environmental impact statements, community case studies, professional papers and articles, local newspapers, and statistical records can provide information about the characteristics of direct project inputs and the changes that have (and have not) occurred in other affected communities. This information can not only help focus the assessment, it can also provide an empirical basis and analytic framework for forecasting the direct project inputs and the social impacts they would cause. The experience of previously affected communities (and the analysis of that experience that is provided in some research reports) can help identify and clarify the major relationships between project inputs and community characteristics that determine the social impacts. It can also provide evidence to support analysis of the type, magnitude, and meaning of the social changes likely to occur.

Throughout the assessment process, information from secondary sources should be used to check and inform the analysis. In other words, it should be used not only to validate the information obtained through interviews and observations, but also to provide insight and direction. An excellent article on how to use secondary sources in social impact assessment is "Grounded Theory Construction in Social Impact Assessment" by Mark Shields. (In Kurt Finsterbusch and C.P. Wolf, eds., Methodology of Social Impact Assessment. New York: McGraw Hill, 1977.)

15.3 Useful Sources of Secondary Data

In social assessment, the primary information requirements center around the four major steps of the assessment process.

1) Describing the existing environment
2) Forecasting the baseline and direct project inputs
3) Forecasting and evaluating the social impacts
4) Developing mitigation measures and evaluating the mitigated alternatives

Many of the sources pertinent to each of these steps have been identified in chapters 9 through 12.[1] Some sources are sufficiently useful to warrant separate discussion.

15.3.1 The United States Census

The decennial census of the population is a rich source of demographic, employment, occupational, and income data. Data readily available at the county level that might be useful include:

1) Population size
2) Age and sex distribution
3) Educational characteristics
4) Migration data
5) Occupational distribution (by sex)
6) Employment by industry (by sex)
7) Family characteristics
8) Income distribution

In counties with substantial minority populations (such as blacks or persons with Spanish surnames), these data are broken out for the separate groups. There is also a decennial census of housing that provides information about housing type, facilities (e.g., bathrooms, running water), ownership patterns, and cost. These data are often available, but less readily, for subcounty areas such as incorporated communities (minor civil divisions) and census tracts. It is also not unusual for a special or interim census to be conducted in communities experiencing rapid growth or decline. It is worth checking to see if this has been done in the study area.

[1] A highly recommended book that identifies and summarizes many of the pertinent data sources is: Steve Murdock and F. Larry Leistritz, Energy Development in the Western United States. New York: Praeger, 1979.

For years ending in 2 and 7 (1967, 1972, 1977), the Bureau of the Census publishes the City and County Data Book, which contains useful summaries of economic, demographic, and governmental services data for counties and cities with populations greater than 25,000. Other census publications that can be useful are the censuses of agriculture, mining and manufacturing, and businesses. In addition, the Bureau of the Census publishes numerous special reports and technical papers that can be pertinent.

Although most of the readily available census materials break information out only to the county level, information for minor civil divisions, tracts, or blocks can be requested and obtained from the Bureau of the Census. However, turnaround time is often slow. Since there are usually few communities in western counties, county level data is frequently adequate to describe the community for assessment purposes. If a more specific breakout is necessary, the subcounty data can be requested or the available data can be extrapolated to the community level, either on a mathematical, statistical, or judgmental basis. In sparsely populated areas with unincorporated or very small communities, even subcounty data may cover more than one community and require extrapolation to estimate community characteristics. The Bureau of the Census also publishes estimates of population and per capita income for intercensal years (in the P-25 and P-26 series), which can be helpful in updating the decennial census data and determining intercensal trends in population change.

A common problem with census data is that it is frequently badly out of date, since it is collected only once every ten years. Even if an interim census has been conducted, the infrequency of collection can impose serious limitations on the applicability of the data, especially in rapidly changing communities. However, even in these circumstances, census data is often the best alternative available. By using the most recent census data as a comparison point, community residents can often identify the general type and magnitude of the changes that have occurred. This approach is also often helpful for estimating community characteristics from the county level data.

One aspect of experience is knowing where and how information is available. Since familiarity with the various types of census data can increase the efficiency and quality of the assessment, it is well worth the effort required.

15.3.2 State Publications

State governments compile a good deal of information on schools, taxation, and social services that can be useful in assessment work. This data is usually gathered on the county level, although it can in some instances be collected for separate communities. These data are often available only from individual state agencies, so their acquisition can require some research and effort.

One of the most usable state documents is the annual vital statistics report. These reports usually contain statistics on marriages, divorces, county populations, infant mortality, and so on. If the agency has not already conducted an analysis of trends, this information can be developed by comparing the statistics for different years.

Crime statistics can normally be obtained from the state's attorney general or justice department. Annual reports of Part I (major) crimes are usually published broken out to at least the county level. The FBI Uniform Crime Reports, which are widely available, are useful to provide data at the state and national level.

Many states are now making their own population projections. These are made either by a state agency or by a department of one of the state universities, usually at the county level. Local development activities and migration are often taken into account in these projections, which are therefore often more useful than U.S. census projections. Nevertheless, particular attention must be paid to the validity of the assumptions that underlie the projection techniques, as well as the assumed levels of development and migration for the study area.

State agencies also publish economic data (e.g., employment/unemployment figures) and studies that can be useful. The project economist will usually be familiar with the type of data available. In addition, state agencies may have conducted studies of separate communities, especially those which have been or are likely to be impacted, that can provide valuable information.

15.3.3 Federal Government Publications

The federal government, and separately its many bureaus and agencies, publishes an enormous amount of information, some of which can be useful in social assessment. In addition to the Bureau of the Census publications described above, other federal agencies that may provide pertinent information include the Environmental Protection Agency, the Bureau of Labor Statistics, the Department of Energy, the Department of Housing and Urban Development, the Department of the Interior, the Department of Health and Human Services, and the Department of Education. Since many of these documents are not published by the U.S. Government Printing Office, and thus are not listed in its catalog, active searching may be required to identify and obtain those pertinent to your work. Many of the publications or information of interest can be obtained by calling offices in these departments or agencies and inquiring about what new materials are available.

15.3.4 College and University Publications

College and university publications can be good sources of data. Some particularly likely sources are departments of sociology, social work, economics, and business. Faculty and/or students in these departments may have conducted specialized studies in the community or areas of interest. Also, there may be pertinent theses or dissertations on the community or area. It can also be helpful to talk to some of the faculty, since they may know of other sources of information on the community or area.

Another potentially valuable source is agricultural experiment station research bulletins or reports. Many community studies are pub-

lished by experiment stations, and they often address issues of interest to the social assessment.

College and university libraries are also good information resources. Some are depositories for federal and state documents and reports, and many attempt to collect all reports and studies done in the state, whether prepared by public or private organizations.

15.3.5 Professional Papers and Journal Articles

A great deal of information about social impacts is contained in paper presented at conferences, workshops, symposia, or other types of professional meetings. Such meetings can cover a particular topic, such as human services in impact areas, or they can cover the whole spectrum of social assessment issues. Usually these meetings are announced well in advance, but it may be difficult to identify and obtain the papers presented at earlier meetings.

Professional journals also contain articles that will be of interest to the assessor. Articles may deal with theoretical perspectives on social assessment, reviews of literature, community case studies, or comparative analyses of several communities and areas.

15.3.6 "Fugitive" Documents

Outside of the census data, perhaps the richest source of information is contained in "fugitive" documents. These are studies that were conducted for internal use by companies or state, regional, or federal agencies or that were written as working or conference papers by persons interested and active in social assessment. Many are "back-up" documents prepared by the agency staff or consultants as part of the work necessary to prepare a published report.

The essential feature of this material is that it is difficult to identify and hard to obtain. The best approach is continual inquiry -- be persistent in asking if anyone knows of any good material on the topics of interest. Once identified, the material can frequently be

obtained from the author or, failing that, from the person who provided the reference. It is often necessary to pay reproduction costs and postage to obtain these documents, which are frequently unpublished or out-of-print.

A general rule to follow at the start of each assessment is to telephone colleagues to ask who has been working either in the study area or on the topics of interest. Then contact the persons identified to solicit materials and additional references. The literature review prepared for the Social Effects Project (Thompson and Branch 1981) and the Murdock and Leistritz (1980) book referenced above provide a place to start on this search.

APPENDIXES

Appendix A:
Demographic Projections

Appendix A: Demographic Projections

A.1 Introduction

The population projection is frequently the basic material from which the social assessment is made. Consequently, the projection of population change is of fundamental importance to many social impact assessments, particularly those addressing large-scale resource development projects.

This appendix discusses population projections. The major types of population projections are presented and briefly discussed. The purpose of the appendix is to familiarize the assessor with the major types of projection methods, along with their uses and limitations. Following this, some guidance on population projections in general are offered. Since the specific formulas used in population projections are readily available from the references given at the end of the appendix, they are not presented here.

Before discussing particular projection methods it is useful to distinguish between population estimates and population projections or forecasts. Population estimates deal with the current size (and perhaps structure) of the population of some area (city, county, state, nation, etc.) or the size of the population at some point in the past, usually some intercensal year. Methods of population estimation are not considered in this section, but for the convenience of the reader, a few references on estimation are provided in Section A.6.

A population projection is a calculation of the future size (and perhaps structure) of a population, based on a set of assumptions. A projection is therefore a calculation of expected future population. Generally, the terms "population projection" and "population forecast" are used interchangeably.

The process of assessing the demographic impacts of an energy development project requires projection of the demographic change that would occur without the development, projection of the demographic change that would occur with the project, and analysis of the differences between the two. The steps involved in this process are similar to those of the overall assessment process:

1) Describe the existing environment.
2) Forecast baseline conditions.
3) Describe the pertinent characteristics of the proposed action.
4) Forecast conditions with the proposed action.
5) Analyze the project effects.

It should be noted that population projections can be developed to project school age population, race/ethnic composition, labor force population, urban/rural residence, etc. However, these are specialized project techniques and will not be discussed here. They are sometimes included in economic-demographic models, such as described in Section A-4. The books by Bogue (1979) and Shryock and Siegel (1975) cover these types of projections.

Prior to beginning serious work on population projections or population phenomena in general, familiarity with the basic terminology of demography and the importance and interpretation of age-sex structure is recommended. A working knowledge of basic demographic concepts will enhance one's ability to think and communicate intelligibly in the field of demography. The significance of these and similar factors for social phenomena are clearly described in a number of standard demographic references including Shryock and Siegel (1972), Pittenger (1976), Irwin (1977), Bogue (1969), Petersen (1975), Matras (1977), and Smith and Zoph (1976). The work by Matras is especially helpful because of its sociological emphasis.

These authors emphasize several general principles of population projections, including the fact that a population projection is only as

accurate as the assumptions on which it is based and is generally more accurate if performed:

1) For an entire nation or large geographic region rather than for a small component area or subregion;
2) For total populations rather than for subpopulations or population subgroups;
3) With series using data directly related to population change (births, deaths, and migration data) rather than those using data that provide indirect or symptomatic and indicators of population change (automobile registration, housing counts, etc.);
4) For shorter rather than longer periods of time;
5) For areas in which past trends are more likely to continue than new patterns to arise; and
6) For areas undergoing slow rather than rapid change.

Obviously, the areas and circumstances under consideration in social impact assessment are not very congruent with these points. This requires the assessor to pay close attention to the population projection and how it is done and to use it with appropriate caution.

Population projection methods can be conveniently divided into two broad categories: those that project the size of the total population and those that project the population by age-sex structure. The two methods differ significantly. Irwin (1977a) provides an excellent brief description of the major projection techniques.

A.2 Methods of Total Population Projection

The methods of total population projection can be subdivided into two types. The first are methods based on mathematical functions and may be called mathematical methods or models. These are direct methods of population projection. The second are indirect and are termed ratio or share methods.

The mathematical methods of total population projection are relatively easy to do and require data that is generally readily available. One advantage of the mathematical methods is that they can be used at

the community level. Generally the necessary data are available at that level. On the other hand, the drawbacks and limitations of these methods, discussed below, make them less than attractive. Underlying all of the total population methods is the assumption that population growth (or decline) will follow a smooth curve that is defined by a particular mathematical function. Moreover, the methods are based on functions derived from past population growth, which may not be particularly relevant to future change.

In social impact assessment, use of the mathematical models should be limited to situations in which little or no population growth is anticipated, the projection does not have to be for very far into the future (e.g., not more than ten years), and interest is limited to the size of the total population. If it is anticipated that there will be large population changes, these methods are inappropriate for two reasons. First, large population changes are not historically characteristic of many areas that are impacted, and these models are not equipped to project shifts in rates of growth. Secondly, these methods do not project the age-sex structure of the population, which is crucial in doing social assessment.

A.2.1 Mathematical Methods

Although there are a number of different mathematical models for projecting total population size, only a few -- the most widely known and used -- are discussed here. The basic idea behind mathematical methods of population projection is to extend a population pattern of the past into the future. (Although, as will be seen, it is possible to introduce a new growth rate into some of the models.)

The methods described in this section are called noncomponent methods because they do not take into separate account the three components of population change: births, deaths, and migration. In the methods presented, only the total population is projected, and it is not

possible to state whether the change in population size is due to changes in births, deaths, or net migration, or some combination of the three.

In addition, the methods project only the total population and do not examine changes in the age-sex structure. Since many of the impacts on a community are related to changes in the age-sex structure of the population and not just to change in the size of the total population, the methods discussed are useful in social impact assessment only under conditions where little population change is expected to occur and where the main force during the impact is something other than population change.

A.2.1.1 THE LOGISTIC CURVE

Perhaps the most famous and widely used of the mathematical methods is the logistic curve developed by Pearl and Reed (Pittenger 1976). Although the logistic curve has, at times in the past, been successful in predicting the size of the total population for the U.S. and other countries, the claim by Pearl and Reed is that it is a law of population that has not been substantiated (Dorn 1950). The logistic curve requires more data than some of the other mathematical techniques, but at the same time can be used to project population further into the future (Shryock and Siegel 1975).

There are two features of the logistic curve that should be noted. First, it has an upper limit (or asymptote) above which the size of the population cannot grow. That is, the logistic curve will not project an unlimited population size in the future. This is helpful since it is safe to assume that any population will not increase to an unlimited number. A second feature of the logistic curve is that it can be used only for conditions of increasing population. If the population of the study area has been decreasing, or is expected to decrease, a logistic curve cannot be used.

A.2.1.2 THE EXPONENTIAL AND GEOMETRIC CURVES

Two other commonly used mathematical models are the exponential and the geometric curves. These are similar in form and nature, the difference being that the exponential model is used to forecast continuous data, whereas the geometric model is used to make forecasts for discrete intervals, e.g. ten-year periods.

Both of these methods can be easily used with little data on the past population, but the projection can be made for only a short time period in the future. It is possible to use these models to examine the potential size of the future population using new growth rates rather than those that have occurred in the past. (That is, from other sources the forecaster may have determined that the population would grow by 1.5 percent per year for three years and then grow by 1 percent per year for the remainder of the impact period.) This information can be used directly, along with the size of the population at the beginning of the forecast period, to project the future population. These methods can be used with either increasing or decreasing populations. However, these methods have the capacity to yield unreasonably large, small, or even negative population totals.

A.2.1.3 REGRESSION TECHNIQUES

These techniques forecast the size of the future population as a function of one or more independent variables such as registered vehicles, population density, or similar population-related variables. They require a large amount of data on both past population size as well on the independent variables.

An inherent characteristic of these techniques is that the form and nature of the relationship that existed between the independent variables and total population size in the past is assumed to hold, without change, into the future. Under the impact conditions, this generally is not a very safe assumption and limits the situations in which these methods are appropriate.

A.2.1.4 POLYNOMIAL PROJECTIONS

The final mathematical model to be considered is that of polynomial projection, in which past population is plotted and a curve is fitted to the data. The formula defining the curve of past population size is then used to project future population.

A.2.2 Share and Ratio Methods

Two types of indirect methods of projecting the size of the total population will be briefly examined here. Again, the assessor should study the methods in more detail from the references in Section A.6 if it is decided that they can be used. These methods are indirect in the sense that they do not use rates of growth directly, but derive the population projection on the basis of its relationship to some other population.

A.2.2.1 THE SHARE METHOD

The share method relates the population of the area of interest to a larger area in which the area of interest is located, a common example being a small town and the county in which it is located. The historical pattern of the share of the smaller area to the larger is examined. Then the population of the larger area is projected, and the size of the smaller area is extrapolated from that projection, using the historical pattern. The logic behind the share method is that it may not be possible to know the growth rate or vital statistics of the smaller area, but such information is available for the larger area.

Under impact conditions, however, the share of an impacted community frequently changes with respect to the county, so the historical pattern is often not very relevant to the problem. This limits the usefulness of this approach for impact assessment in which geographically specific activities will drive population change.

A.2.2.2 THE RATIO METHOD

The basic idea behind these methods is that one can establish population ratios for factors that can be forecast -- employment or housing stock, for example -- and use these ratios to project population. Thus, if one knows or can project the future labor force size, the population can be forecast by applying the appropriate ratios (or multipliers, as they are sometimes called) to these projections. These methods have not been very successful and should not be used for population projections in impact assessment.

There are several other types of share or ratio methods that have been proposed and/or used. These include a population density method, a ratio-correlation method, and a housing stock method. Overall, these methods have not been all that productive and especially are not pertinent to population projection associated with large-scale development.

Both mathematical and share and ratio methods have been extensively used in population projections, but as Pittenger (1976) notes they have not been all that useful. These methods should be used when more complete data on the population to be projected is not available or when a short-term projection of the total population is all that is needed. In the latter case the mathematical methods would be the more appropriate. These methods should not be used when major population changes are anticipated.

Indeed the limitations of the mathematical and share and ratio methods have led to their general abandonment for almost any serious population projection efforts and their replacement by component methods which use the process of births, deaths, and migration and which project population by age and sex.

A.3 Component Methods of Population Projection

A.3.1 The Cohort-Component Method

There are two principle types of component population project techniques: cohort-survival and cohort-component. The only difference

between the two is that the former does not take migration into account. Its purpose is to project a closed population. Both use birth and death information. In addition, these projections are almost never made at the community level, but at a county or regional (constituted by two or more counties) level. This is because the necessary population data (birth rates, migration rates) are not availale at the community level, particularly for rural communities. This discussion concentrates on the cohort-component technique since migration is usually the important consideration for impact assessment.

These methods generally project population by five-year age groups, by sex, at five-year intervals, although this does not have to be the case. The exact procedures by which projections are made using these methods are quite detailed. Since they are readily available in the references cited at the end of this section, they are not specified here. Rather, the discussion focuses on the kinds of assumptions that need to be made about mortality, fertility, and migration when using these techniques.

The population projection made by the cohort-component method is driven by the assumptions made about the levels, or rates, of mortality, births, and migration (which includes in-migration and out-migration). The rates used in the projection are age-specfic rates. The age interval for the rates must be the same as the age interval for the projection. (For example, if the age structure is broken down into five-year intervals and one of those intervals is 26-30, data on age-specific mortality rates for males and females must be available for these same intervals). Age-specific birth rates for females in the child-bearing years (generally considered to be 15-44, although 15-49 is also sometimes used), must also be available.

Changing the assumptions about how these rates will behave in the future leads to entirely different projections. It is therefore imperative that the person making the forecasts pay close attention to the assumptions that are made about these rates and how they change over time.

A.3.1.1 MORTALITY RATES

Data on mortality rates are generally fairly easy to obtain and are not particularly controversial.[1] Because mortality rates have stabilized and are not expected to decline significantly in the near future, unless there is some major medical breakthrough on heart disease or cancer, mortality rates derived from the state or national population can generally be used. The age-specific mortality rates found in state or national life tables can be used directly. Mortality rates are given by age and sex for the total population and by race. The rates that are used need to conform to the projection. For example, if the population is being projected without regard to race, then the mortality rates for all males and all females (not separated by race) for the respective age groups should be used.

Many component models employ an assumption that the mortality ratio will fall to a hypothesized minimum level at some fixed rate. This assumption is probably unnecessary, since mortality rates have generally stabilized and the hypothetical minimum for each age-sex group is not significantly lower than the present level. (This does not apply, however, to developing countries where mortality is still declining.) Thus, one may use current age-specific mortality levels as constants in the projection and be on safe ground (Pittinger 1976).

A.3.1.2 BIRTH RATES

Assumptions about birth rates are not as easy to make as those about mortality rates. Decisions must be made about which rates to utilize and how they should be modified over time. National, state, and county age-specific birth rate data are generally available. The principal reason not to use national rates is the confounding influence of regional and urban/rural differences.

[1] In actuality, survivorship rates (one minus the mortality rate) are used in the projections. However, the convention is to speak of mortality rates.

If the assessor wishes to derive age-specific birth rates from state or county data, the information found in Pittenger (1976), Shryock and Siegel (1975), and Tarver and Black (1966) is useful. Unlike mortality rates, birth rates should not be kept constant through the projection period. How to trend the fertility rates is a judgmental decision. Some of the factors to take into consideration are national fertility trends, local (state and/or county) trends, very recent upswings or downturns in fertility levels, and so on. There are no hard and fast rules to guide these decisions other than that they should be reasonable and accord with present and past data, and, of course, be such that they do not lead to outlandish projections.

A.3.1.3 MIGRATION

In many situations involving social impact assessment, migration is the population component from which almost all of the population change will come. Therefore, particular attention needs to be given to assumptions about the rate of migration for different age and sex cohorts.

Migration rates for impact assessment forecasts are typically derived through analysis of labor market demand. It is assumed in these projections that workers (both primary and secondary) will come in to fill jobs that the local labor market cannot fill. This makes for an economic/demographic model that links the labor force and economic conditions to the more demographic phenomena of mortality and fertility. The crucial assumptions that need to be carefully worked out are the rates of in-migration by age (the scheduling, when the peak will occur) and subsequent rates of out-migration.

If a labor market demand model is not used for the migration portion of the model, it might be best to use the age-specific migration experience of other places that have experienced projects similar to the one under consideration.

A.3.1.4 ALLOCATION OF THE POPULATION TO COMMUNITIES

As was mentioned earlier, the cohort-component techniques do not project populations of communities per se, but of counties or regions. This raises the problem of how to allocate the projection to the relevant communities. This problem occurs with the projection of both the baseline and the with-project population.

There are several techniques to allocate the population with respect to the baseline projection; the share method discussed earlier is probably the most reasonable. Allocation of the project population projection is more ticklish. Gravity models have been extensively used, but have been shown to be not all that useful in rural or sparsely populated areas (Murdock, Wieland, and Leistritz 1978). Judgmental approaches have also been suggested and may have some validity (Leistritz and Murdock 1981). Another procedure would be to carefully examine the experience of similar areas that have experienced development and find out the how the incoming population distributed itself in the area. One way this could be done is by deriving age-specific migration rates or other measures of population change from the 1980 census.

The problem of the allocation of the population is crucial. Only through the allocation will the assessor be able to determine which communities will be impacted and in what magnitude. There are no clear-cut rules or guidelines for making the decision on how to allocate the population. Like so many other aspects of population projections, good judgment and reasonableness are necessary.

A.4 Economic/Demographic Models

Recently, increased use had been made of combinations of economic-based and cohort-component techniques in impact assessments, with a corresponding decrease in the use of the population-to-employment ratios that dominate earlier impact projections. Most economic-based techniques employ standard economic projection methods (such as export base or input/output) to project labor requirements and a cohort survival method in conjunction with a set of projected labor force participation

rates to project labor availability. Labor requirements and availability are matched to derive projections of in- or out-migrating labor, which are converted to population projections through application of a set of assumed population characteristics (average family size, age, marital status, etc.).

In order to illustrate how all of these components contribute and interact in the population projection, a description of an economic/demographic model developed by Mountain West Research, Inc. is provided. This illustrates not only the data requirements for the projection, but the types of results one may expect from an impact assessment population projection model as well. Working through this model can help you become more familiar with projection models and facilitate more effective interaction with the economic/demographic analyst.

A.4.1 Overview

The economic/demographic simulation model used in this example analyzes the impact of various assumptions and scenarios on the population, employment, and income of a region. The roots of this type of model can be traced to the Susquehanna River Basin Model, originally developed by Battelle, and similar models used in Wyoming, Arizona, and Utah.

The overall theoretical construction of these models is essentially the same; three submodels comprise the fundamental structure. A demographic submodel accounts for population characterisitics, such as births and deaths and the age/sex composition of an area. The supply of labor is determined from labor force participation rates and the "survived" population. An economic submodel determines labor demand utilizing an economic base approach to estimate total employment. A labor market submodel reconciles model estimates of labor supply and labor demand. Labor market imbalance triggers either in- or out-migration from the area. The process results in consistent levels of population, employment, and income for the area.

Although the structure of the example model follows this general approach, the three principal submodels have been refined extensively and three additional components have been added. The first additional component, the construction worker submodel, determines the geographic source (local/nonlocal) and the residential choice of construction workers related to large-scale development projects. A community allocation submodel has also been added to produce community-specific population projections and impacts. Finally, a project management submodel organizes project-related information and other user-supplied inputs that form the alternatives to be evaluated. The general flow of information in the model is summarized in Figure A-1.

A.4.2 Demographic Submodel

The demographic submodel serves as an accounting framework to keep track of the population characteristics of an area and, in particular, the components of population change that occur from year to year: migration, births, and deaths. The demographic submodel utilizes a process known as "cohort-survival" that separately estimates births and deaths based on age- and sex-specific vital rates. This allows the composition of the population to be considered in the determination of the births and deaths. In addition, any anticipated changes in fertility and survival patterns may be included. Finally, special subpopulations, such as large construction work forces, that may have demographic characterisitics that differ substantially from the general population are explicitly considered. Figure A-2 summarizes the cohort-survival process utilized in the model.

A.4.3 Economic Submodel

Current research in regional economic modeling, particularly that related to impact assessment, has revealed that there are strong similarities among properly specified input-output, econometric, and export base models. The multipliers derived from the three approaches have been demonstrated to be consistent, both theoretically and empirically. Regional economic modeling, therefore, has become increasingly eclectic,

FIGURE A-1

Economic/Demographic Assessment Model Overview

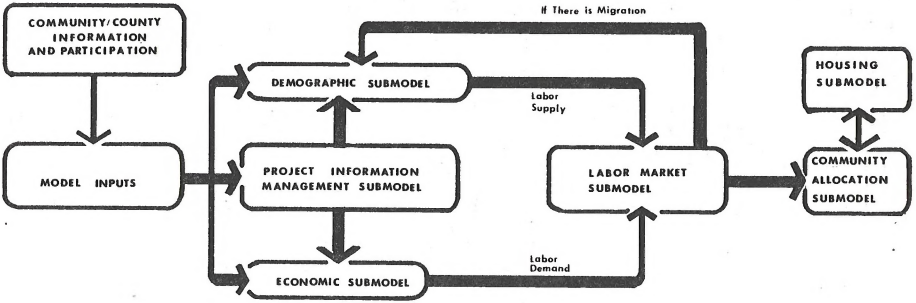
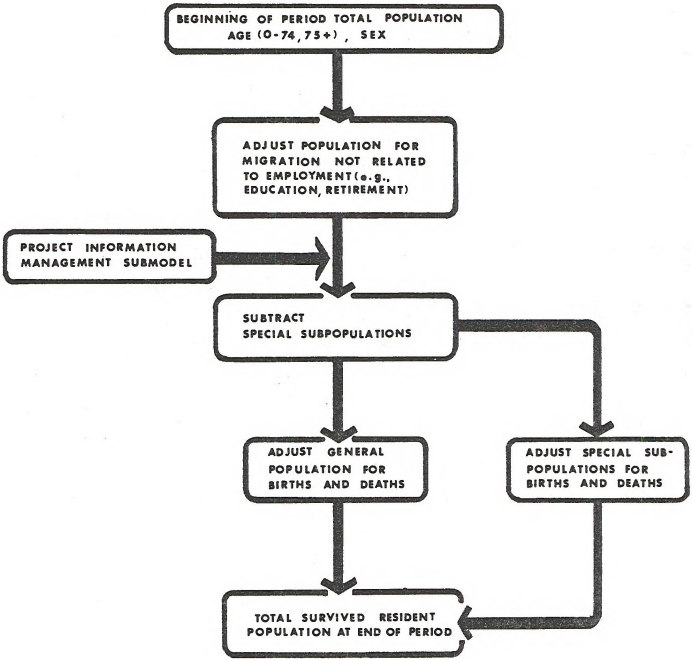


FIGURE A-2

Economic/Demographic Assessment Model
Demographic Submodel



often utilizing aspects of all three techniques. In practice, the essential differences among the methods concern the degree of sectoral disaggregation, the data base from which they are estimated, and the ability of each to answer particular questions and incorporate and evaluate alternative assumptions and options.

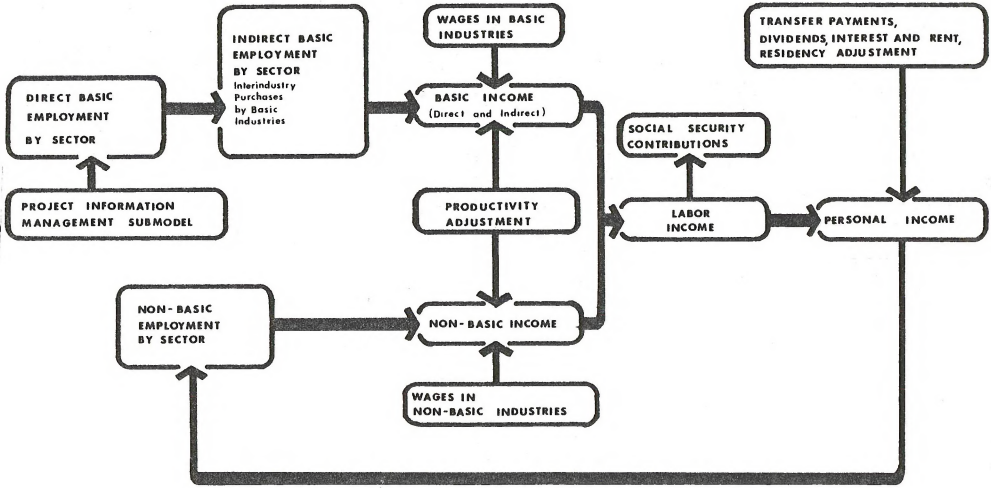
The economic submodel in this example is appropriately classified as an export base model that produces consistent forecasts of employment and income. It postulates that total economic activity is determined by basic labor income, nonbasic labor income, and nonlabor components of personal income.

The general framework of the economic submodel is shown in Figure A-3. Beginning with basic employment projections supplied by the user, basic income is calculated by multiplying basic employment by sector-specific annual wage rates. Basic income is used to estimate nonbasic employment and nonbasic income, which are then used to calculate nonlabor income. Both the nonbasic income and the nonlabor income estimates are added to the basic income figure to approximate total personal income. The calculations of nonbasic employment and income and of nonlabor income are then repeated using this new level of personal income. Since any change in personal income is assumed to affect nonbasic employment and a change in nonbasic employment affects income, the iterative process is continued until a consistent level of personal income and nonbasic employment is established. It is this simultaneous determination of income and nonbasic employment that distinguishes this technique. Since basic income is determined through the basic employment projections supplied by the user, it is not affected by changes in the level of personal income. Nonbasic employment, and hence nonbasic income, and the nonlabor income components do change with changes in personal income and subsequently induce further changes in personal income.

The economic submodel has been structured to account for some of the shortcomings of traditional simple export base formulations. In particular:

FIGURE A-3

Economic/Demographic Assessment Model
Economic Submodel



-- Basic employment is weighted to reflect earnings differentials among sectors. It makes little sense to postulate that a change in relatively low-waged tourist-serving trade employment will have the same effect on the local economy as as change in heavy construction. The appeal of an income-drive base model is apparent.

-- Rigorous attention is paid to the split between basic and non-basic employment. Even "ballpark accuracy" for multipliers demands this approach. Much of the a priori categorization of export base approaches is contrary to the observed experience of economic sectors in the smaller counties of the West.

-- Trading relationships within the local impact area are explicitly examined because of the interdependencies of local economies. If one part of the local impact area is an important trade or service center, this raises different analytical problems than would be experienced if all parts of the impact area were economically homogeneous.

-- Finally, a simulation model is only as valid as its current information. The economic submodel is structured so that the user can "override" many of the model parameters, thereby incorporating more appropriate or more recent data as deemed necessary.

A.4.4 Labor Market Submodel

The labor market submodel evaluates the consistency between labor supply and labor demand. The basis for estimation of labor demand is the level of total employment produced by the economic submodel, adjusted for residency and multiple job holding. Labor supply is computed from the survived population in each age and sex cohort and the corresponding labor force participation rate (LFPR). If there is an excess of jobs relative to the size of the available labor force, it is assumed that the balance will be reestablished between the supply and demand for labor by in-migration of labor market entrants. If, on the other hand, there is an excess supply of labor, it is assumed that out-migration will occur.

When the implied unemployment rate is outside a pre-specified range, the model will calculate the number of labor force migrants required to achieve labor market balance. The labor force migrants are allocated to age and sex groups according to the industrial composition of the regional economy, and the appropriate number of dependents associated with the labor force migrants is then calculated. From the new level of

population (adjusted), the relationship between supply and demand for labor has to be reconsidered. These iterations continue until the implied unemployment rate is brought within the appropriate range. The general flow of information in the labor market submodel is presented in Figure A-4.

A.4.5 Community Allocation Submodel

The community allocation submodel is used to allocate the county-level population projections to specific communities in the study area. The allocation procedure addresses each of the components of population change individually. The community allocation routines are designed to take advantage of as much recent, user-supplied data as is practical, but they are, nonetheless, structured to make the allocation processes as straightforward as possible. The model contains four community distribution algorithms that may be used to distribute each of the components of population change. The user, however, has the option of entering additional distributions if desired.

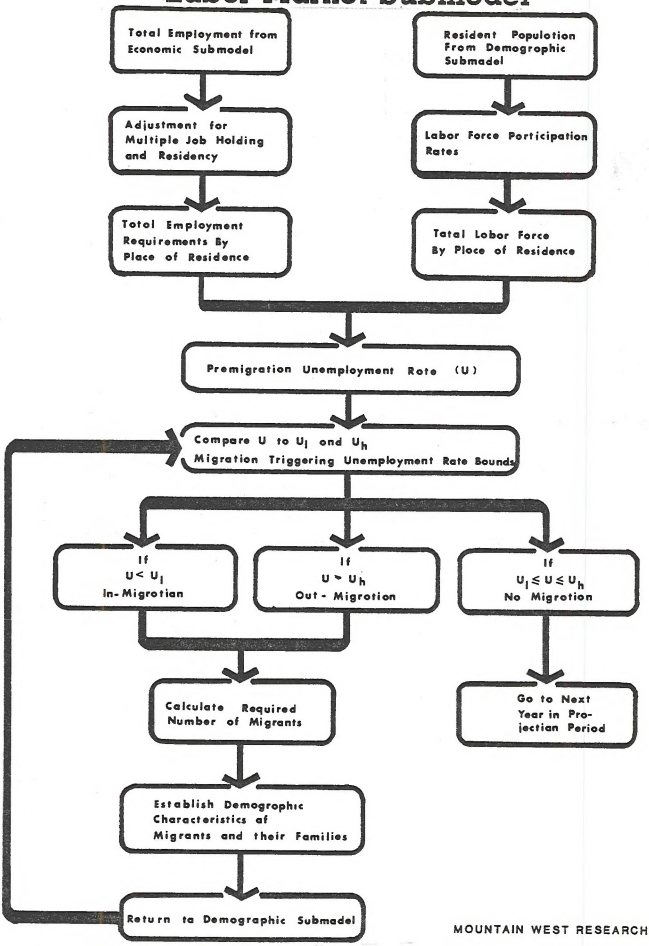
The first distribution generated by the model is based on each community's share of the county's population for the first forecast year. A second option is based on each community's share of the county's population for the previous year. The third distribution formula uses the growth experience of each community between the first census year and the first forecast year, relative to the overall growth of the county during that period. Nonlocal construction workers and their dependents are allocated on a project basis according to the allocation assumptions of the construction worker submodel or the allocations supplied by the user in the project management submodel.

A.4.6 Project Information System

The project information system is a data base program that keeps track of project-related information individually. For each identifiable project within the region, the system stores the following information:

FIGURE A-4

Economic/Demographic Assessment Model
Labor Market Submodel



MOUNTAIN WEST RESEARCH ,INC

-- Name of type of project
-- First and last year of project
-- Project employment by year
-- Average wages paid by year
-- Nonmover/mover proportions by year
-- Community distribution of nonmovers
-- Community choice of movers
-- Local purchases of materials and services by sector and year

The program has been designed to accept user input for these items and allows the user to update the information for a given project at any time. The project information system has been directly linked to BREAM so that the user can specify an alternative for a region by selecting which of the projects contained in the data base are to be included in each BREAM run. Thus, a set of projections can be made with one set of projects, and another projection run can be produced using a different combination of available projects. In addition, the system can be used to modify project data. An important use is to change project construction timetables and analyze the impacts associated with the change. Although this is a somewhat "typical" alternative futures procedure, the appeal of the project information system lies in the ease of combining projects, eliminating the major sources of human error associated with trying to keep track of what projects were used for each scenario. In addition, the project information system can be used to override the construction worker subroutine.

A.4.7 Construction Worker Submodel

An important use of the model is to analyze the economic and demographic implications of major construction projects. Critical to this analysis is the determination of the likely source of the construction work force. If a large proportion of the workers are from the local study area, the impact on the region will be less than if the project caused the in-migration of a large number of temporary construction workers. A related issue concerns the residency choices of the temporary work force that migrates to the area.

The construction worker submodel provides a systematic method for determining the proportion of the construction work force that will come

from within commuting distance of the project (local workers) and the proportion that will migrate into the study area to work on the project (nonlocal workers). In addition, the submodel allocates the nonlocal workers to specific communities and areas around the construction site according to the relative attractiveness of each community and the distance from the project site.

The construction worker submodel may be overridden by the user, the necessary information to allocate local/nonlocal workers being provided by the project management program.

A.5 Summary

Obviously, population projections using component methods and interfacing economic and demographic factors is not something one would want to do with a desk-top calculator, as was the case with the mathematical model and share and ratio methods. The component projections require both large data bases and large computer facilities, to which the assessor may not have access. To obtain component projections, then the assessor may have to contract out to organizations that have such capabilities.

If the assessor decides to contract out for the population projection, there are several key factors that must be included in the request for proposal (RFP). First, the type of projection should be clearly stated. The RFP should state that a cohort-component method is wanted, not just a population projection. The latter could include almost anything from a full-blown population model to a rough guess. Second, the assessor may wish to specify what age categories are to be used and for how far into the future the projection is to be made. Third, if the assessor does not wish to specify the mortality, birth, and migration rates in the RFP, the RFP should clearly state that respondents should specify the rates used in the model. This is extremely important. If the assumptions are not specific or are unknown, the assessor will not be able to judge the adequacy of the model.

Keyfitz (1972) gives some excellent guidelines on the importance of the underlying assumptions and how they should be stated. It would be a good idea for the assessor to require that the assumptions be stated in the format proposed by Keyfitz. Lastly, but importantly, the assessor must clearly state what the population projection is needed for, the dimensions of the project, and its starting time, duration, and location.

Frequently, several population projections are needed, not just one. For example, a population projection may be made with one level of fertility, which may be considered "high," another projection with a level of fertility considered "medium," and a third one with a fertility level considered "low." The three projections are then compared and implications are derived. For impact assessment, a number of projections are often needed: one without the proposed action and one for each of the proposed alternatives. It is useful if the projections are presented in both tabular and graphic form.

Once the assessor has the population projections in hand, they should be seriously studied and evaluated before being used. Population projections cannot be used uncritically. Indeed, population projections are least effective if they are seen as strictly a mechanical process (Morrison 1977). Questions that need to be asked include: Are the projections reasonable? Do they match what is known about the project? In essence, the assessor should be completely familiar with the projections and what they imply before using them.

A final word of caution: population projections for small areas are always prone to large errors, mostly due to the factor of migration. This problem is confounded in projections for impact assessment. For these reasons population projections should be used carefully and not be made for more that twenty years into the future (Shryock and Siegel 1975).

As stated at the beginning of this section, the population projection is of fundamental importance to the assessment process. It deserves the full attention and critical thinking of the assessor. It

must be kept in mind that the assessment begins with the population projection. If these projections are in serious error, all subsequent results are jeopardized.

A.6 References

The references cited here are sufficient to introduce the assessor to population projections. The book by Pittenger is especially recommended as an excellent introduction.

Bogue, Donald

1969 Principles of Demography. New York: Wiley.

1974 Techniques for Making Population Projections: How to Make Age-Sex Projections by Electronic Computer. Chicago: Community and Family Study Center.

1979 Techniques for Making Functional Population Projections. Chicago: Community and Family Study Center.

Dorn, Harold F.

1950 Pitfalls in Population Forecasts and Projections. Journal of the American Statistical Association 45:311-334.

Irwin, Richard

1977a Guide for Local Area Population Projections. Bureau of the Census Technical Paper 39. Washington, D.C.: U.S. Government Printing Office.

1977b Methods and Data Sources for Population Projections of Small Areas. In Population Forecasting for Small Areas, pp. 14-24. Oak Ridge, Tennessee: National Technical Information Service.

Keyfitz, Nathan

1972 On Future Population. Journal of the American Statistical Association 67:347-363.

1977 Applied Mathematical Demography. New York: Wiley.

1981 The Limits of Population Forecasting. Population and Development Review 7:579-593.

Leistritz, F. L., et al.

1979 A Model for Projecting Localized Economic, Demographic, and Fiscal Impacts of Large-scale Projects. Western Journal of Agricultural Economics 4:1-16.

Leistritz, F. Larry, and Steven H. Murdock
1981 The Socioeconomic Impact of Resource Development: Methods for Assessment. Boulder, Colorado: Westview.

Matras, Judah
1977 Introduction to Population: A Sociological Approach. Englewood Cliffs, New Jersey: Prentice-Hall.

Morrison, Peter A.
1977 Overview of Forecasting for Small Areas. In Population Forecasting for Small Areas, pp.3-13. Oak Ridge Tennessee: National Technical Information Service.

Murdock, Steve H., F. Larry Leistritz, and Lonnie L. Jones
1979 Interfacing Economic and Demographic Models for Rural Areas: Design and Methodological Considerations. Southern Journal of Agricultural Economics 11:139-144.

Murdock, Steve H., J.S. Wieland, and F. Larry Leistritz
1978 An Assessment of the Validity of the Gravity Model for Predicting Community Settlement Patterns in Rural Energy-Impact Areas in the West. Land Economics 54:461-471.

Petersen, William
1975 Population, 3rd edition. New York: MacMillan.

Pittenger, Donald B.
1976 Projecting State and Local Populations. Cambridge, Mass.: Ballinger.

Shryock, Henry S., and Jacobs Siegel
1975 The Methods and Materials of Demography. Washington D.C.: U.S. Government Printing Office.

Smith, T. Lynn, and Paul E. Zoph, Jr.
1975 Demography: Principles and Methods. New York: Alfred.

Tarver, James D., and Thiel R. Black
1966 Making County Population Projections - A Detailed Explanation of a Three Component Method, Illustrated by Reference to Utah Counties. Logan, Utah: Utah Agricultural Experiment Station Bulletin (Technical) 459.

U. S. Department of Commerce
1977 Population Forecasting for Small Areas. Oak Ridge, Tennessee: National Technical Information Service.

Morrison, Peter A.
1971 Demographic Information for Cities: A Manual for Estimating and Projecting Local Population Characteristics. Report R-618-HUN. Santa Monica, Calif.: Rand Corporation.

Shryock, Henry S., and Jacobs Siegel
1975 The Methods and Materials of Demography. Washington, D.C.: U.S. Government Printing Office.

Smith, Stanley K., and Burt B. Lewis
1980 Some New Techniques for Applying the Housing Unit Method of Local Population Estimation. Demography 17:329-339.

Appendix B:
Guide to Facilities/Services and Fiscal Assessment

Appendix B: Guide to Facilities/Services and Fiscal Assessment

B.1 Introduction

Recently, analysis of effects on the provision of facilities and services in areas affected by large-scale resource projects has played an increasing role in the EIS and site permitting processes. As a result, the methods for conducting the analysis to determine the facility/service and net fiscal effects of a proposed project have increased dramatically in sophistication and reliability.

This appendix provides two approaches to the analysis of these impacts. One is a quick assessment method that is appropriate for evaluation of leasing alternatives and other general assessments. The second is a comprehensive technique that will yield an analysis of the type and magnitude of the facilities and services impacts and the overall fiscal effects of a proposed action thorough enough to serve as the basis for site-specific planning and mitigation. In both, the purpose of the assessment is to determine what types of changes/response the proposed action will require of the affected jurisdictions and to assess each jurisdiction's ability to respond. The quick approach focuses on service areas which have been shown to be the critical indicators of impacts on facilities and services, primarily because they require major capital investment as a consequence of population growth. This approach provides a reasonably good estimate of the magnitude of the facilities/services impacts, but does not address each aspect in detail. For assessment of a primary or general nature that will be followed by more detailed site-specific assessments, or for the assessment of projects which have large uncertainties regarding work force schedules, location, and project value, this approach is usually most appropriate.

The more detailed technique provides information which can appropriately be used for planning and mitigation purposes. With this approach, all of the affected jurisdictions are identified, and the impacts

assessed at a level of detail useful for site-specific planning and for detailed consideration of mitigation needs.

B.2 The Purpose of Facility/Service/Fiscal Assessment

The primary purpose of a facility/service/fiscal assessment is to determine how the facilities and services available to local residents will be affected by a proposed action and how the changes in service/facility demands and revenue sources will affect tax levels and net fiscal balance. When viewed in its entirety, the purpose of a facilities/services/fiscal assessment is twofold: (1) to identify areas requiring planning, expansion, or modification to meet changing needs, and (2) to assess the burden placed on local jurisdictions and local residents, their ability to respond, and the potential consequences of inadequate response.

Since the effects of large scale projects are generally not distributed uniformly across time nor among different local jurisdictions, it is important that the methodology be sensitive to both temporal and jurisdictional differences. The approach suggested here is composed of five principal steps, which can be utilized for either the quick or the comprehensive assessment effort.

1) Identify the local jurisdictions, area agencies, and state agencies active in the affected area that are either providing services or receiving revenues that would be affected by the proposed action, and delineate their responsibilities and relationships.

2) Inventory the existing facilities and services of these jurisdictions and agencies. This inventory should include description of mechanisms by which revenues are obtained (e.g., taxing powers, boundaries for ad valorem taxes, and revenue sharing strategies) and description of existing physical plants, staff characteristics, and staff requirements. When compiling this inventory, it is important that deficiencies and total capacities are noted, as this information is important in analyzing ability to respond.

3) Determine the pertinent project inputs and forecast the demand for facilities and services, taking into account where possible particular needs created by rapid growth, temporary growth, and the likely characteristics of the new population (which, for example, may demand higher service levels or different services than the existing population).

4) Analyze the ability of the various jurisdictions and agencies to meet this demand. This analysis requires a combination of fiscal and organizational analysis, since the question is two-fold: (1) Will the jurisdiction have sufficient funds to provide the service? and (2) Are the lead time and organizational characteristics such that problems and/or shortages can be avoided? Historical exposure to change, the presence of effective ordinances, and attitudes toward meeting the increased demands are important indicators.

5) Assess the consequences and, if appropriate, delineate and evaluate mitigation measures to address the shortfalls. In the facilities/services area (more clearly than most others), problems can be avoided if sufficiently aggressive mitigation measures are taken. Mitigative strategies can include grants, loans, loan guarantees, modification of ordinances, reorganization of governmental boundaries and/or relationships -- the alternatives are very broad.

As mentioned above, this appendix has been designed to provide guidance in addressing facilities/services/fiscal assessment at two levels -- one which estimates and evaluates the magnitude and consequences of the facilities/services impacts of a proposed action or set of actions in general terms and one which analyzes these effects in considerably greater detail. As throughout the guide, it is important that the level of detail of the facilities/services assessment be appropriate to the overall assessment effort.

B.3 The Approach

B.3.1 Identify the Affected Jurisdictions and Agencies and Inventory Existing Facilities and Services

This step leads to the preparation of a description of the existing environment and requires an approach similar to that described in chapters 7 and 9 (i.e., it is important to know something about both the existing environment and the proposed action before starting this step in earnest). Here, the main questions to ask are the following:

1) Will the change in population or population characteristics be sufficient to cause an appreciable change in the demand for services? If yes, which ones? What jurisdictions, services, and facilities will be likely to be affected? Will they be able to respond adequately and in time?

2) Will the change in property values or tax revenues be sufficient to cause an appreciable change in the ability of any jurisdic-

tions or agencies to provide adequate service? Would this provision necessitate changes in local tax rates that would adversely affect any group(s) of local residents (e.g., the elderly)?

B.3.1.1 LEVEL ONE APPROACH—ESTIMATION OF MAGNITUDE OF THE PROBLEM

For the quick approach, the following steps and level of detail are recommended. First, list the counties that will be affected by the project, based on the population forecasts and the location of the project. For each of these counties, the boundaries of the municipalities, school districts, hospital districts (or facilities, if private), and significant water and sanitation districts need to be delineated. The following data then need to be compiled:

1) Inventory of key facilities, noting present capacity, local standards, and major deficiencies.
 -- County jail
 -- County office building
 -- Municipal office building (usually including police and retention cells)
 -- School buildings
 -- Hospital(s)
 -- Major water treatment plants
 -- Major sewage treatment facilities

2) Inventory of personnel/personnel needs, focusing on personnel essential to service provision and identifying local standards and shortages.
 -- Law enforcement (sworn officers)
 -- Health care (physicians, dentists, nurses, public health nurses)
 -- Human services (mental health, alcohol and drug counselors, family crisis counselors)
 -- Education (teachers, counselors)

3) Estimates of operating costs that can be used to estimate cost per population ratios adequate for forecasting.

4) Delineation of revenue sources for the key services. At this stage, it is important to understand the overall taxing and revenue flow structure of the jurisdictions being examined. A particular problem in impact situations is the flow of additional revenues to a limited number of jurisdictions (frequently a county and a school district) while the demand for services is manifest in others (particularly municipalities and other school districts). Another problem is a demand for services that is manifest prior to the increase in tax revenues. When delineating revenue flows, it is important to be alert to these two types of problems.

B.3.1.2 LEVEL TWO APPROACH—DETAILED DELINEATION FOR COMPREHENSIVE ASSESSMENT

This level of analysis addresses all affected public and quasi-public services. For this approach, considerably more effort is required to inventory the existing level of services and quality of facilities. As with the previous approach, the affected counties must first be identified, and for each affected county the boundaries and characteristics for all of the following districts/jurisdictions/agencies should be delineated:

- -- Municipalities
- -- School districts
- -- Hospital districts (or private hospitals)
- -- Water districts
- -- Sanitation districts
- -- Fire districts
- -- Library districts
- -- Recreation districts
- -- Public and quasi-public human service groups/agencies (mental health, alcohol and drug abuse, sheltered environments, day care, multi-county planning or service groups)

Once this is done, a facility inventory needs to be completed for each of these districts/jurisdictions/agencies which includes the following:

1) Inventory of present facilities, noting present capacity, local standards, and major deficiencies.
2) Inventory of present land holdings, with an assessment of the appropriateness of the land for public use (e.g., as a school site, an office/maintenance site, recreation area).
3) Description of plans to expand service, including expansion time frame, and evaluation of the probability that the project will actually be funded and developed.
4) Delineation of developer requirements and ordinances that require developers to carry the cost of providing facilities. It is important to identify requirements since this means that the costs will be shifted from the jurisdiction to the developer (or purchaser of a home). Examples of developer requirements include:

-- Land set aside for parks, open space, and schools
-- Water lines
-- Sewer lines
-- Plant investment (water and sewer processing)
-- Utility lines
-- Street improvement
-- Acquisition of water rights

5) Delineation of operational costs. For each of the jurisdictions included in the assessment, it is necessary to identify the costs associated with providing manpower, maintenance, minor capital outlays, and other operational expenses. Based on these data, a coefficient of the relationship between operational and maintenance expenditures and population served can be developed for use in the forecasting steps. To enhance the reliability of the coefficient estimates, it may be useful to include data from other counties in the same state to increase the sample size and guard against biases introduced by a small number of observations.

6) Delineation of fiscal conditions. For each of the jurisdictions, the following characteristics need to be determined:
-- Present indebtedness
-- Debt service requirement
-- Bonding limitations
-- Revenue mechanisms and amounts (ad valorem taxes, sales and use taxes, revenue sharing, intergovernmental transfers, and other taxing authorities/powers)

This information must frequently be compiled from sources at both the state and local level.

B.3.1.3 PREPARE THE EXISTING ENVIRONMENT REPORT

In preparing the existing environment report, it is recommended that a separate study file be created for each jurisdiction and agency and that these disaggregated files be maintained throughout the assessment process. It is always easier to aggregate well-documented information from separate files to summarize impacts than to have to try to reconstruct disaggregated data if other combinations or separate units need to be examined.

B.3.2 Describe Pertinent Project Inputs

B.3.2.1 POPULATION FORECASTS

Impacts on facilities and services are primarily a function of changes in the population served or of revenues available. In order to adequately assess the facilities/service effects of a project, it is necessary to have annual estimates of the baseline and with-project population. For the level one analysis, these estimates will need to be disaggregated by school-aged children (elementary, junior high, senior high) and by total population for impacted counties and municipalities. For the level two analysis, the estimates need to be disaggregated into five-year age and sex cohorts for each of the jurisdictions or service areas.

The population data are used to forecast demand for facilities and services (although some demand is more directly driven by housing, population can serve as an adequate proxy). The disaggregated age/sex data are used for generating information about specific health and human services activities/programs.

B.3.2.2 REVENUE FORECASTS

In order to assess the effect of the proposed project on the balance between demand and supply, it is also necessary to determine the baseline and with-project revenues for each of the affected jurisdictions. The principal purpose of the revenue forecast is to determine whether forecasted revenues will exceed the forecasted demand for expenditures.

The taxes (or revenue sources) to be forecast for each jurisdiction/agency include the following:

-- Ad valorem taxes
-- Sales and use taxes
-- Receipts from revenue sharing
-- Other local taxes

For the level one analysis, the focus is on determining the annual revenue flow for the entities that are being reviewed. Calculation of total baseline and project-related revenues are generally based on information from state and local service providers and from company estimates (either of actual tax payments or of total value/sales to which local tax rates/formulas can be applied).

Level two analysis requires development of annual revenue flows for each jurisdiction or agency over the study period. This requires thorough examination of local budget data, because intergovernmental relationships and revenue flows are frequently complex and are not always evident from the available secondary data. In addition, in level two analysis, careful review with responsible personnel is important in order to obtain information about local policies and plans that will affect future revenue flows and expenditure patterns. Obviously, if numerous jurisdictions are involved, a level two analysis can be a major undertaking requiring substantial field time collecting and confirming the data and baseline forecasts, not to mention the impact analysis and its confirmation.

It is important to realize that mechanisms which affect funds flows vary from state to state and from county to county. Consequently, it will be necessary to review the laws, policies, and precedents involving the following:

1) Revenue sharing among local jurisdictions
2) Definitions and effects of home rule
3) Taxing powers of different entities
4) The availability of state impact funds, severance taxes, or conversion taxes
5) The distribution (and timing) of sales and use taxes, if any exist
6) Consolidation, annexation, or boundary change requirements
7) Other laws affecting local taxing powers or funds flows, with particular attention to those dependent upon local initiative/leadership.

Where local governments have considerable flexibility in matters of taxation or revenue sharing, and there are precedents regarding collaboration between jurisdictions, it is more likely that a method can be found to cause funds to flow to the jurisdictions/agencies with the greatest needs than where such flexibility is limited and few precedents exist. It is not at all uncommon in energy-impacted areas to have large budget surpluses generated in some jurisdictions and large deficits in others because no effective means can be developed to transfer funds.

In the level one analysis, it is important that the mechanisms for facilitating or inhibiting such flows of funds be identified and applied in the impact discussion.

In the level two analysis, several alternative forecasts may be made to examine the implications of these types of mechanisms and to identify the optimal strategy from the perspective of minimizing adverse effects. It should be noted carefully, however, that utilization of many of these mechanisms are political decisions that will be made within the local jurisdictions. This feature must not be lost in the assessment effort.

The absence or underestimation of tax revenue data from the proposed action(s) and failure to account for local flexibility in the management of revenues are frequent problems in facilities/services/fiscal assessment. In general, such failure results in overstatement of the need for additional revenues -- usually translated into direct mitigation by the sponsor of the proposed action.

B.3.3 Forecast Demand for Facilities and Services

Consistent with the other assessment components, determination of the facilities, services, and fiscal effects of a proposed action requires analysis and forecasting of the baseline or "no-action" alternatives. In the level one assessment, only major capital requirements are identified, with no attempt made to address operation and maintenance costs that could have some long-term effects on local tax rates and/or service quality. However, the level one assessment does identify

major staffing shortages. Together, these two aspects of facilities/services provision provide a fairly good indication of the degree of response required from the local jurisdictions and of their ability to respond.

The level two assessment provides detailed examination of all capital and operation and maintenance costs and yields an assessment of the net effect of the proposed action (over the baseline condition) in terms of capital requirements, operation and maintenance costs, and fiscal balances for each of the jurisdictions/agencies.

B.3.3.1 CAPITAL REQUIREMENTS

For both the level one and level two analyses, it is necessary to determine the capital investments that will be required. To do this, a set of standards for the various capital facilities must be developed that is technically and politically appropriate for the communities under study. Developing these standards can be politically sensitive, and it is important that standards currently in use by the affected jurisdiction or mandated by the state be noted and utilized, if appropriate. However, experience has shown that many jurisdictions do not have operational standards, or are utilizing a standard which would be inappropriate under growth conditions (because of economies of scale, for example). A variety of secondary sources can be used to develop a set of standards for capital facilities. For convenience, Figure B-1 provides a set of standards that were developed in 1982 as part of a six-county study in western Colorado. It is felt that these standards would be appropriate for many of the potentially impacted areas in the West, but review of alternative sources and consultation with service providers in the study area to confirm appropriateness is highly recommended.

It should be noted that many agencies do not develop standards that are driven by population, the most useful type of standard for impact assessment. In addition, when dealing with specific facility design and planning, the detailed population characteristics (age/sex

FIGURE B-1

Capital Requirements and Capital Costs

FACILITY	STANDARD	COST
City Administrative Space	800 sq. ft./1,000 population	$65/sq. ft.
Water Treatment Capacity	400 gpcd	$.45/gallon
Water Storage	400 gpcd	$.40/gallon
Water Waste Processing	100 gpcd—plant	$1.50/gallon
	1A/100—nonaerated lagoon	$12,000/acre
	1A/1,000—aerated lagoon	$120,000/acre
Streets	1.9 mi./1,000—local/residential	$250,000/mile
	0.9/1,000 collectors	$450,000/mile
	0.5/1,000 arterial	$600,000/mile
	3.3 total	$1,180,000/mile
Parks	6.2 acres/1,000	$24,000/acre
County Administration (not sheriff and jail)	1,000 sq. ft./1,000	$65/sq. ft.
Sheriff Department (includes jail)	400 sq. ft./1,000	$100/sq. ft.
County Shop	1,300 sq. ft./1,000	$40/sq. ft.
City Shop	1,600 sq. ft./1,000	$40/sq. ft.
Solid Waste	0.2/acres/1,000/yr.	$2,000/acre
Libraries	700 sq. ft./1,000	$50/sq. ft.
Fire Halls	1,000 sq. ft./1,000	$50/sq. ft.
Hospitals	3.3 beds/1,000	$65,000/bed

Schools:	sq. ft./student	Optimal Capacity	Site	Cost/sq. ft.
Elementary	80	400	10 acres	$48
Junior High	110	525	21 acres	$60
Senior High	125	650	33 acres	$60

Source: Mountain West Research, Inc., Colorado CITF, February 1982.

characteristics) may become important, but the intricacies of facilities/services program modification and mitigation are beyond the scope of this chapter.

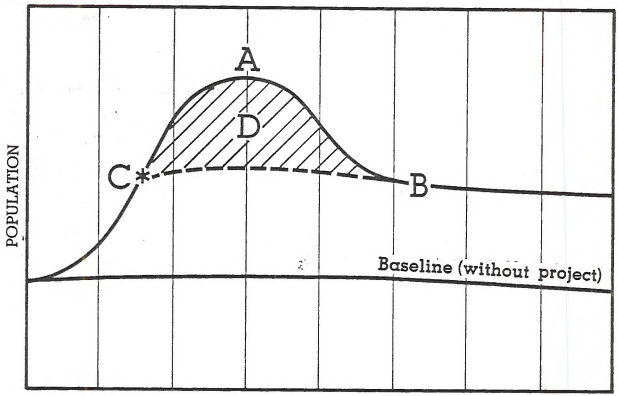
The two main issues to be addressed in forecasting capital facilities requirements and expenditures for impact communities are timing and scaling. Particularly for communities which will experience a large temporary population influx that will last for less than ten years, the provision of adequate facilities for the peak population without burdening the community with excess capacity for many years after the temporary population has left is a major problem.

To address this problem, an approach similar to that recommended in chapters 9 and 11 can be used. In this approach, the annual population estimates for the jurisdiction under consideration are graphed, as shown in Figure B-2, for both the baseline and with-project conditions. To determine the magnitude of the peak temporary population (and its resulting service demand), three points are identified on the graph: (1) the point at which the population reaches its temporary or construction phase peak (point A), (2) the point at which the population reaches its long-term permanent level (point B), and (3) the earliest point where the long-term permanent population level is reached (point C). By drawing a line between points C and B, it is possible to visually indicate the magnitude and duration of the excess temporary population (or demand) in a way which facilitates clearer assessment of capital facility requirements.

Using Figure B-2 as an example, it would make sense to consider providing permanent facilities adequate to the long-term permanent population, to try to have those facilities in place by the time point C is reached, and to provide temporary facilities to meet the excess temporary demand. By considering the difference in demand between the baseline and with-project conditions at times C, A, and B, the demand effects of the proposed action can be determined.

FIGURE B- 2

Summary of Population Change



A Peak Temporary Population (with project)

B Long-term Permanent Population (with project)

C Point at which Population Reaches Long-term Permanent Size

D Temporary Excess Population

For level one analysis, the calculations are quite straightforward once existing facilities have been inventoried and standards have been established. They involve multiplying the total with-project population at each time period (for each alternative) by the standard to determine needed capacity, and then comparing that to the existing capacity (baseline) to determine the net excess or deficit. In order to evaluate the cost of overall demands placed on local decision-makers and service providers, it is helpful to examine the timing and magnitude of change required to move from the existing condition to the baseline and with-project conditions. The cost of meeting the deficits can then be calculated, and a series of tables constructed for each jurisdiction.

B.3.3.2 OPERATION AND MAINTENANCE COSTS

For the level one analysis, the total effect of the proposed action on area budgets will not be determined, but critical staffing requirements and minor capital outlays will be identified. As with the capital requirements analysis, a set of standards must be developed, either from local sources or from secondary sources. Once the standards have been determined and checked to verify local costs (and have been agreed upon by local officials), an approach similar to that described for capital expenditures is recommended. Utilizing this type of analysis will help facilitate efficient staffing during the temporary peak period, if one exists. Figures B-3 and B-4 provide some examples of standards and costs for staffing and minor capital outlays.

In level two analysis, the operation and maintenance ratios established during the inventory work are utilized, rather than staffing or minor capital outlay standards. These coefficients are applied to the population estimates to forecast total operation and maintenance requirements for each year of the study period for each alternative and for the baseline. Since the number of jurisdictions/agencies is frequently fairly large, it is increasingly common for these

FIGURE B-3

Staffing Requirements

MANPOWER GROUP	STANDARD
SWORN OFFICER	2.1/1,000 population
PHYSICIAN	1/1,200 population
DENTIST	1/1,200 population
PUBLIC HEALTH NURSES	1/3,500 population
TEACHERS	1/18 students

FIGURE B-4

Minor Capital Outlays

UNIT	STANDARD	UNIT COST
PATROL CAR	0.7/1,000 population	$14,000
GARBAGE TRUCK	1/6,000 population	80,000
FIRE TRUCK	0.33/1,000 population	110,000
AMBULANCE	1/3,500 population	60,000

calculations and tabulations to be done by computer, since hand calculation is tedious.[1]

B.3.3.3 OVERALL FISCAL BALANCE

The forecasting of overall fiscal balance under with-project conditions is central to the issue of facilities/services/fiscal assessment. The level one assessment does not provide comprehensive enough coverage to address fiscal balances, but can provide a good indication of the relative balance between service demands and revenue flows to flag problem areas and indicate which jurisdictions may have difficulty responding to project-related demands.

The level two assessment allows summation of total demand for expenditures (by year) for each jurisdiction -- capital requirements (which can be lagged to take lead time into account) and operation and maintenance expenses -- which can then be compared to the forecasts of total revenues to yield an annual forecast of the net fiscal balance. This process can be used to explore the consequences of different millage rates or taxing policies on net fiscal balance and to examine the effects of such strategies in terms of cost to residents versus lower service provision.[2]

B.3.4 Assess the Ability of Communities to Respond

Assessing the ability of a community to respond to the demands of a proposed action and identifying possible mitigative requirements constitutes the final step in the assessment process. When making this assessment, it is necessary to consider the following factors:

[1]For small communities (less than 2,500), it may be appropriate to conduct a cross-sectional analysis of communities of various sizes in the same state to develop a coefficient range that will capture the economies and diseconomies of scale which are likely to occur with population change.

[2]If large differences in property tax rates are a possibility, the distributional effects should be examined. Elderly residents on fixed incomes, for example, can be adversely affected by large property tax increases.

1) The magnitude of change demanded for any of the affected jurisdictions. If the change requires not only expansion of capacity but also modification in the nature of the organization or operation, the demands upon decision-makers, service providers, and service users will be greater than if these types of qualitative changes are not necessary.

2) The cumulative change demanded of all jurisdictions/agencies serving a community. One of the problems created by energy development is leadership and administrative overload, accompanied by a crisis of community confidence. The more decisions and changes that are loaded onto a community's facility and services providers over a short time period, the more difficult it is for decisions to be made well and in a timely fashion. Once the community's response begins to lag, uncertainty and anxiety can escalate rapidly, aggravating the response problems.

3) The complexity of the decision-making process regarding appropriate community response. Historically, a high proportion of the communities heavily impacted by energy development have been agricultural-based, have experienced declining demand and resource bases, and are characterized by residents who favor conservative fiscal policy. When such communities are faced with complex problems such as those created by large, temporary population peaks, community response mechanisms can become paralyzed as leaders and residents debate the appropriate response. Communities appear to have less difficulty when response strategy is least uncertain.

4) The availability of resources, especially revenues. There is no doubt that communities with clearly adequate revenue flows have an easier time responding than communities where revenue flows are uncertain or clearly inadequate. Inadequacy of revenues is a problem which has plagued many municipalities, limiting their ability to respond.

5) Leadership experience and the nature of existing mechanisms. One of the problems facing impacted communities is the need to mobilize response quickly, before conditions deteriorate, patterns of vested interest are established, and community residents lose confidence in leadership. Communities with experienced leaders (and an experienced populace) may be better prepared to act decisively than communities for which impact is a new experience, and there is no question that communities with effective planning mechanisms already in place are at an advantage in marshalling their efforts to control growth and make community level decisions. The existence of clear, strong requirements for subdivisions and developers also facilitates response.

Taking the forecasts of demand for new facilities and services, the net fiscal balance, and these factors into consideration, the facilities/

services/fiscal assessment should be summarized for each community. This summary should clarify the ability of the community to prevent service inadequacies, assessing the cost associated with preventing inadequacies and the potential consequences of those inadequacies. It is important that this final summary be made and that the assessment not stop with a description of the number of additional facilities required.

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225